

Service Manual

Duct type



[Applied Models]

- Non-Inverter Pair : Cooling Only
- Non-Inverter Pair : Heat Pump

Non-Inverter Pair Duct Type

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1. INTRODUCTION

1.1 Safety Cautions

Cautions and Warnings

- Be sure to read the following safety cautions before conducting repair work.
- The caution items are classified into “ **Warning**” and “ **Caution**”. The “ **Warning**” items are especially important since they can lead to death or serious injury if they are not followed closely. The “ **Caution**” items can also lead to serious accidents under some conditions if they are not followed. Therefore, be sure to observe all the safety caution items described below.
- About the pictograms
 -  This symbol indicates an item for which caution must be exercised.
The pictogram shows the item to which attention must be paid.
 -  This symbol indicates a prohibited action.
The prohibited item or action is shown inside or near the symbol.
 -  This symbol indicates an action that must be taken, or an instruction.
The instruction is shown inside or near the symbol.
- After the repair work is complete, be sure to conduct a test operation to ensure that the equipment operates normally, and explain the cautions for operating the product to the customer

1.1.1 Caution in Repair

 Warning	
Be sure to disconnect the power cable plug from the plug socket before disassembling the equipment for a repair. Working on the equipment that is connected to a power supply can cause an electrical shock. If it is necessary to supply power to the equipment to conduct the repair or inspecting the circuits, do not touch any electrically charged sections of the equipment.	
If the refrigerant gas discharges during the repair work, do not touch the discharging refrigerant gas. The refrigerant gas can cause frostbite.	
When disconnecting the suction or discharge pipe of the compressor at the welded section, release the refrigerant gas completely at a well-ventilated place first. If there is a gas remaining inside the compressor, the refrigerant gas or refrigerating machine oil discharges when the pipe is disconnected, and it can cause injury.	
If the refrigerant gas leaks during the repair work, ventilate the area. The refrigerant gas can generate toxic gases when it contacts flames.	
The step-up capacitor supplies high-voltage electricity to the electrical components of the outdoor unit. Be sure to discharge the capacitor completely before conducting repair work. A charged capacitor can cause an electrical shock.	
Do not start or stop the air conditioner operation by plugging or unplugging the power cable plug. Plugging or unplugging the power cable plug to operate the equipment can cause an electrical shock or fire.	

 Caution	
Do not repair the electrical components with wet hands. Working on the equipment with wet hands can cause an electrical shock.	
Do not clean the air conditioner by splashing water. Washing the unit with water can cause an electrical shock.	
Be sure to provide the grounding when repairing the equipment in a humid or wet place, to avoid electrical shocks.	
Be sure to turn off the power switch and unplug the power cable when cleaning the equipment. The internal fan rotates at a high speed, and cause injury.	
Do not tilt the unit when removing it. The water inside the unit can spill and wet the furniture and floor.	
Be sure to check that the refrigerating cycle section has cooled down sufficiently before conducting repair work. Working on the unit when the refrigerating cycle section is hot can cause burns.	
Use the welder in a well-ventilated place. Using the welder in an enclosed room can cause oxygen deficiency.	

1.1.2 Cautions Regarding Products after Repair

 Warning	
Be sure to use parts listed in the service parts list of the applicable model and appropriate tools to conduct repair work. Never attempt to modify the equipment. The use of inappropriate parts or tools can cause an electrical shock, excessive heat generation or fire.	
When relocating the equipment, make sure that the new installation site has sufficient strength to withstand the weight of the equipment. If the installation site does not have sufficient strength and if the installation work is not conducted securely, the equipment can fall and cause injury.	
Be sure to install the product correctly by using the provided standard installation frame. Incorrect use of the installation frame and improper installation can cause the equipment to fall, resulting in injury.	For integral units only

Be sure to install the product securely in the installation frame mounted on a window frame. If the unit is not securely mounted, it can fall and cause injury.	For integral units only
Be sure to use an exclusive power circuit for the equipment, and follow the technical standards related to the electrical equipment, the internal wiring regulations and the instruction manual for installation when conducting electrical work. Insufficient power circuit capacity and improper electrical work can cause an electrical shock or fire.	
Be sure to use the specified cable to connect between the indoor and outdoor units. Make the connections securely and route the cable properly so that there is no force pulling the cable at the connection terminals. Improper connections can cause excessive heat generation or fire.	
When connecting the cable between the indoor and outdoor units, make sure that the terminal cover does not lift off or dismount because of the cable. If the cover is not mounted properly, the terminal connection section can cause an electrical shock, excessive heat generation or fire.	
Do not damage or modify the power cable. Damaged or modified power cable can cause an electrical shock or fire. Placing heavy items on the power cable, and heating or pulling the power cable can damage the cable.	
Do not mix air or gas other than the specified refrigerant (R410A) in the refrigerant system. If air enters the refrigerating system, an excessively high pressure results, causing equipment damage and injury.	
If the refrigerant gas leaks, be sure to locate the leak and repair it before charging the refrigerant. After charging refrigerant, make sure that there is no refrigerant leak. If the leak cannot be located and the repair work must be stopped, be sure to perform pump-down and close the service valve, to prevent the refrigerant gas from leaking into the room. The refrigerant gas itself is harmless, but it can generate toxic gases when it contacts flames, such as fan and other heaters, stoves and ranges.	
When replacing the coin battery in the remote controller, be sure to dispose of the old battery to prevent children from swallowing it. If a child swallows the coin battery, see a doctor immediately.	

 Caution	
Installation of a leakage breaker is necessary in some cases depending on the conditions of the installation site, to prevent electrical shocks.	
Do not install the equipment in a place where there is a possibility of combustible gas leaks. If a combustible gas leaks and remains around the unit, it can cause a fire.	
Be sure to install the packing and seal on the installation frame properly. If the packing and seal are not installed properly, water can enter the room and wet the furniture and floor.	For integral units only

1.1.3 Inspection after Repair

 Warning	
Check to make sure that the power cable plug is not dirty or loose, then insert the plug into a power outlet all the way. If the plug has dust or loose connection, it can cause an electrical shock or fire.	
If the power cable and lead wires have scratches or deteriorated, be sure to replace them. Damaged cable and wires can cause an electrical shock, excessive heat generation or fire.	
Do not use a joined power cable or extension cable, or share the same power outlet with other electrical appliances, since it can cause an electrical shock, excessive heat generation or fire.	

 Caution	
Check to see if the parts and wires are mounted and connected properly, and if the connections at the soldered or crimped terminals are secure. Improper installation and connections can cause excessive heat generation, fire or an electrical shock.	
If the installation platform or frame has corroded, replace it. Corroded installation platform or frame can cause the unit to fall, resulting in injury.	
Check the grounding, and repair it if the equipment is not properly grounded. Improper grounding can cause an electrical shock.	
Be sure to measure the insulation resistance after the repair, and make sure that the resistance is 1 Mohm or higher. Faulty insulation can cause an electrical shock.	
Be sure to check the drainage of the indoor unit after the repair. Faulty drainage can cause the water to enter the room and wet the furniture and floor.	

1.1.4 Using Icons

Icons are used to attract the attention of the reader to specific information. The meaning of each icon is described in the table below:

1.1.5 Using Icons List

Icon	Type of Information	Description
 Note:	Note	A “note” provides information that is not indispensable, but may nevertheless be valuable to the reader, such as tips and tricks.
 Caution	Caution	A “caution” is used when there is danger that the reader, through incorrect manipulation, may damage equipment, loose data, get an unexpected result or has to restart (part of) a procedure.
 Warning	Warning	A “warning” is used when there is danger of personal injury.
	Reference	A “reference” guides the reader to other places in this binder or in this manual, where he/she will find additional information on a specific topic.

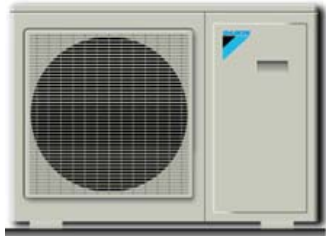
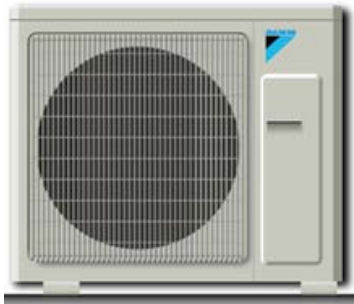
Part1

SPECIFICATIONS

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1. MODELS LIST

1.1 Outdoor Unit

Model	Refrigerant	Power Supply	Appearance
RY24PEV1K R24PEV1K	R22	220-240V 1PH 50Hz	
RY30PEV1K R30PEV1K	R22	220-240V 1PH 50Hz	
RY36PEY1K R36PEY1K	R22	380-415V 3PH 50Hz	
RY42PEY1K R42PEY1K	R22	380-415V 3PH 50Hz	
RY48PEY1K R48PEY1K	R22	380-415V 3PH 50Hz	

1.2 Indoor Unit

	Model	Nominal Capacity Cooling/Heating (Btu/h)	Refrigerant	Power Supply	Appearance
Type	FD(Y)M24PEV1K	23200/25500	R22	220-240V 1PH 50Hz	
	FD(Y)M30PEV1K	26300/32100			
	FD(Y)M36PEV1K	33000/41000			
	FD(Y)M42PEV1K	38600/46100			
	FD(Y)M48PEV1K	44400/48200			

Note: 1Ton = 12000Btu/h = 3.517kW

Notes: The universal outdoor units means that the customer can choose any of three kind of indoor units to match the outdoor unit without any change with it.

* Three kind of units

F = Duct Type

K = Cassette Type

T = Ceiling Type

2. NOMENCLATURE



SkyAir Indoor Unit

R-407C
R-22
F D Y M P 24 P E V1 K

Unit Category

F : Air Cooled Split Indoor Unit

Shape (1)

H : Ceiling Suspended

(The case with Shape(2) is excluded.)

U : New Ceiling Suspended Cassette

A : Wall Mounted

V : Floor Standing

D : Duct Connection

D : High Static Pressure

DM(G) : Middle Static Pressure

DB(G) : Low Static Pressure

Type

blank : Cooling Only

Y : Heat Pump or Cooling Only

Shape (2)

C : Multi Flow Cassette

K : Ceiling Mounted Cassette Corner

B : Ceiling Mounted Built-in

Refrigerant

P : R-407C

blank : R-22

Capacity Indication

Rated cooling capacity

(kW at 50Hz) × 10

Model Change Symbol

Progress with each design change

Minor Change Symbol

Power Supply Symbol

Standard Symbol

Management Suffix

A number of a figure

Standard Symbol

Corresponding Standards	Standard Compatibility Symbol	Applicable Unit
General	Blank	Indoor Unit and Outdoor Unit
China	C	
Taiwan	T	
Thailand	S	
Australia	A	
Europe	B	
Korea	D	
U.S.A.	U	
Argentina	Z	
High Temperature Area	K	Outdoor Unit
Anti-corrosion	E	

3. FUNCTION

Function	Description
Memory function	For the air conditioners with this memory function setting, the units may start automatically after power failure reset or the main power supply is turned on again (when the unit restarts , it will return to the same operation condition as that of the former operation status, and the mode and parameter are also kept the same.)
Timing function	it can make timing ON/ OFF separately, meanwhile, it can also make timing on circularly
Self-diagnosis with alarm function	once unit has malfunction, the malfunction code will be indicated and alarm rings immediately
Sleep function	it can self control for saving energy in energy saving mode.
Automatic function	the fan of indoor unit can adjust fan speed automatically based on actual demand when cooling or heating under automatic mode
Cool air protection function	the fan starts only when the temperature of indoor unit heat exchanger is higher than indoor temperature under heating mode
High/low Pressure Protection	when suction pressure is too low or discharge pressure is too high, compressor will stop and unit displays malfunction code
Overload protection	compressor has its own overheat protection, once the temperature of compressor is higher than allowable level, compressor will stop and it can restart only when temperature recovers.
Over current protection	once the current of compressor is higher than normal level, compressor will stop and unit displays malfunction code
Discharge high temperature protection	once the discharge temperature of compressor is higher than allowable level, compressor will stop and unit displays malfunction code.
Reverse (open) phase protection	once the phase sequence of power supply is incongruent or the phase is absent, unit can't work.
Anti-high temperature protection	once the heat exchanger temperature of indoor unit is too high, the compressor will stop.
Timing ON/OFF display	display and make timing turn ON/OFF time
Fan speed display	display the speed (high.medium.low) of fan
Function model display	cooling mode.dehumidifying mode.heating mode.fan mode
Testing display	display testing mode
Temperature display	display room temperature and set temperature

4. PRODUCT DATA

4.1 Product Data at Rated Condition

4.1.1 Duct Type

Model	Outdoor		R24PEV1K
	Indoor		FDM24PEV1K
Function		—	COOLING
Rated Voltage		—	220-240V 1Ph
Rated Frequency		—	50Hz
Total Capacity		(Btu/h)/W	6800 23200
Power Input		W	2500
Rated Current		A	11.9
Max Current		A	19.0
Air Flow Volume (H/M/L)**		m ³ /h	1600/1400/1200
ESP		Pa	25
EER		(Btu/h)/W	9.28
Indoor Unit			FDM24PEV1K
Indoor unit	Fan Motor Speed (H/M/L)	r/min	1250/1220/1060
	Output of Fan Motor	W	150
	Fan Motor Capacitor	μF	8
	Fan Type-Piece	—	Centrifugal fan – 2
	Diameter-Length	mm	φ160 – 200
	Evaporator	—	Aluminum fin-copper tube
	Pipe Diameter	mm	φ9.52
	Row-Fin Gap	mm	2-1.8
	Coil length (L) x height (H) x coil width (W)	mm	1002X253X44
	Fuse	A	5
	Sound Pressure Level dB (H/M/L)	A	47/44/42
	Sound Power Level dB (H/M/L)	A	57/54/52
	Dimension (W/H/D)	mm	1270/268/530
	Dimension of Package (W/H/D)	mm	1345/283/594
	Net Weight/Gross Weight	kg	36/42

Outdoor Unit				R24PEV1K		
Outdoor unit	Compressor Manufacturer/trademark		—	Mitsubishi		
	Compressor Model		—	LHT42VBAC		
	Compressor Type		—	Rotary		
	L.R.A.		A	66		
	Compressor RLA		A	11.2		
	Compressor Power Input		W	2390		
	Overload Protector		—	Auto Reset Thermal Overload		
	Throttling Method		—	Capillary		
	Starting Method		—	Start directly		
	Working Temp Range		°C	Cooling: 18°C-52°C		
	Condenser		—	Aluminum fin-copper tube		
	Pipe Diameter		mm	φ9.52		
	Rows-Fin Gap		mm	2-1.5		
	Coil length (L) x height (H) x coil width (W)		mm	744X660X44		
	Fan Motor Speed		rpm	940		
	Output of Fan Motor		W	92		
	Fan Motor Capacitor		μF	4		
	Air Flow Volume of Outdoor Unit			3200		
	Fan Type-Piece		—	Axial fan –1		
	Fan Diameter		mm	φ450		
	Climate Type		—	T3		
	Isolation		—	I		
	Moisture Protection		—	IP24		
	Design Pressure (Hi/Lo)		MPa	2.5	0.6	
	Sound Pressure Level dB		A	59		
	Sound Power Level dB (H/M/L)		A	69		
	Dimension (W/H/D)		mm	1018/695/412		
Dimension of Package (W/H/D)		mm	1100/755/450			
Net Weight/Gross Weight		kg	66/70			
Refrigerant Charge		kg	R22/2.5			
Connection Pipe	Length		m	5		
	Gas additional charge		g/m	60		
	Outer Diameter	Liquid Pipe	Inch	φ3/8”		
		Gas Pipe	Inch	φ5/8”		
	Max Distance	Height	m	15		
		Length	m	30		
Loading Quantity	20' Container		Interior Dimensions L*W*H: 5898*2352*2393, Door Opening W*H: 2343*2280		37	
	40' Container		Interior Dimensions L*W*H: 12032*2350*2390, Door Opening W*H: 2343*2280		88	
	40' High Cube Container		Interior Dimensions L*W*H: 12032*2350*2697, Door Opening W*H: 2338*2585		99	

Model	Outdoor		R30PEV1K
	Indoor		FDM30PEV1K
Function		—	COOLING
Rated Voltage		—	220-240V 1Ph
Rated Frequency		—	50Hz
Total Capacity		(Btu/h)/W	7700 26300
Power Input		W	2920
Rated Current		A	13.5
Max Current		A	21.0
Air Flow Volume (H/M/L)**		m ³ /h	1500/1300/1100
ESP		Pa	37
EER		(Btu/h)/W	9.01
Indoor Unit			FDM30PEV1K
Indoor unit	Fan Motor Speed (H/M/L)	r/min	1250/1220/1060
	Output of Fan Motor	W	150
	Fan Motor Capacitor	μF	8
	Fan Type-Piece	—	Centrifugal fan – 2
	Diameter-Length	mm	φ160 – 200
	Evaporator	—	Aluminum fin-copper tube
	Pipe Diameter	mm	φ9.52
	Row-Fin Gap	mm	2-1.8
	Coil length (L) x height (H) x coil width (W)	mm	1002X253X44
	Fuse	A	5
	Sound Pressure Level dB (H/M/L)	A	47/44/42
	Sound Power Level dB (H/M/L)	A	57/54/52
	Dimension (W/H/D)	mm	1270/268/530
	Dimension of Package (W/H/D)	mm	1345/283/594
	Net Weight/Gross Weight	kg	36/42

Outdoor Unit			R30PEV1K	
Outdoor unit	Compressor Manufacturer/trademark		—	Mitsubishi
	Compressor Model		—	LHT53VBAC
	Compressor Type		—	Rotary
	L.R.A.		A	76
	Compressor RLA		A	14.8
	Compressor Power Input		W	3050
	Overload Protector		—	Auto Reset Thermal Overload
	Throttling Method		—	Capillary
	Starting Method		—	Start directly
	Working Temp Range		°C	Cooling: 18°C-52°C
	Condenser		—	Aluminum fin-copper tube
	Pipe Diameter		mm	φ9.52
	Rows-Fin Gap		mm	2-1.6
	Coil length (L) x height (H) x coil width (W)		mm	976X762X44
	Fan Motor Speed		rpm	780
	Output of Fan Motor		W	125
	Fan Motor Capacitor		μF	7
	Air Flow Volume of Outdoor Unit			4200
	Fan Type-Piece		—	Axial fan –1
	Fan Diameter		mm	φ552
	Climate Type		—	T3
	Isolation		—	I
	Moisture Protection		—	IP24
	Design Pressure (Hi/Lo)		MPa	2.50.6
	Sound Pressure Level dB		A	58
	Sound Power Level dB (H/M/L)		A	68
	Dimension (W/H/D)		mm	980/790/427
	Dimension of Package (W/H/D)		mm	1080/840/485
Net Weight/Gross Weight		kg	73/77	
Refrigerant Charge		kg	R22/3.4	
Connection Pipe	Length		m	5
	Gas additional charge		g/m	60
	Outer Diameter	Liquid Pipe	Inch	φ3/8”
		Gas Pipe	Inch	φ5/8”
	Max Distance	Height	m	15
		Length	m	30
Loading Quantity	20' Container		Interior Dimensions L*W*H: 5898*2352*2393, Door Opening W*H: 2343*228034	
	40' Container		Interior Dimensions L*W*H: 12032*2350*2390, Door Opening W*H: 2343*228074	
	40' High Cube Container		Interior Dimensions L*W*H: 12032*2350*2697, Door Opening W*H: 2338*258583	

Model	Outdoor		R36PEY1K
	Indoor		FDM36PEV1K
Function		—	COOLING
Rated Voltage		—	380-415V 3Ph
Rated Frequency		—	50Hz
Total Capacity		(Btu/h)/W	9700 33000
Power Input		W	3900
Rated Current		A	7.1
Max Current		A	10.6
Air Flow Volume (H/M/L)**		m ³ /h	2000/1900/1800
ESP		Pa	37
EER		(Btu/h)/W	8.46
Indoor Unit			FDM36PEV1K
Indoor unit	Fan Motor Speed (H/M/L)	r/min	1320/1090/910
	Output of Fan Motor	W	500
	Fan Motor Capacitor	μF	12
	Fan Type-Piece	—	Centrifugal fan – 2
	Diameter-Length	mm	φ200 – 190
	Evaporator	—	Aluminum fin-copper tube
	Pipe Diameter	mm	φ7
	Row-Fin Gap	mm	3-1.6
	Coil length (L) x height (H) x coil width (W)	mm	978X304.8X38.1
	Fuse	A	5
	Sound Pressure Level dB (H/M/L)	A	50/48/46
	Sound Power Level dB (H/M/L)	A	60/58/56
	Dimension (W/H/D)	mm	1226/290/775
	Dimension of Package (W/H/D)	mm	1335/305/834
	Net Weight/Gross Weight	kg	53/61

Outdoor Unit				R36PEY1K		
Outdoor unit	Compressor Manufacturer/trademark		—	SANYO		
	Compressor Model		—	C-SBR145H38P		
	Compressor Type		—	SCROLL		
	L.R.A.		A	53		
	Compressor RLA		A	6.5		
	Compressor Power Input		W	3650		
	Overload Protector		—	Auto Reset Thermal Overload		
	Throttling Method		—	Capillary		
	Starting Method		—	Start directly		
	Working Temp Range		°C	Cooling: 18°C-52°C		
	Condenser		—	Aluminum fin-copper tube		
	Pipe Diameter		mm	φ9.52		
	Rows-Fin Gap		mm	2-1.4		
	Coil length (L) x height (H) x coil width (W)		mm	964X813X44		
	Fan Motor Speed		rpm	920		
	Output of Fan Motor		W	92		
	Fan Motor Capacitor		μF	4		
	Air Flow Volume of Outdoor Unit			4000		
	Fan Type-Piece		—	Axial fan –1		
	Fan Diameter		mm	φ482		
	Climate Type		—	T3		
	Isolation		—	I		
	Moisture Protection		—	IP24		
	Design Pressure (Hi/Lo)		MPa	2.5	0.6	
	Sound Pressure Level dB		A	60		
	Sound Power Level dB (H/M/L)		A	70		
	Dimension (W/H/D)		mm	1018/840/412		
	Dimension of Package (W/H/D)		mm	1100/985/450		
Net Weight/Gross Weight		kg	89/97			
Refrigerant Charge		kg	R22/3.6			
Connection Pipe	Length		m	5		
	Gas additional charge		g/m	120		
	Outer Diameter	Liquid Pipe	Inch	φ1/2”		
		Gas Pipe	Inch	φ3/4”		
	Max Distance	Height	m	30		
		Length	m	50		
Loading Quantity	20' Container		Interior Dimensions L*W*H: 5898*2352*2393, Door Opening W*H: 2343*2280		30	
	40' Container		Interior Dimensions L*W*H: 12032*2350*2390, Door Opening W*H: 2343*2280		60	
	40' High Cube Container		Interior Dimensions L*W*H: 12032*2350*2697, Door Opening W*H: 2338*2585		66	

Model	Outdoor		R42PEY1K
	Indoor		FDM42PEV1K
Function		—	COOLING
Rated Voltage		—	380-415V 3Ph
Rated Frequency		—	50Hz
Total Capacity		(Btu/h)/W	11300 38600
Power Input		W	4600
Rated Current		A	8.9
Max Current		A	13.0
Air Flow Volume (H/M/L)**		m ³ /h	2000/1900/1800
ESP		Pa	37
EER		(Btu/h)/W	8.39
Indoor Unit			FDM42PEV1K
Indoor unit	Fan Motor Speed (H/M/L)	r/min	1320/1090/910
	Output of Fan Motor	W	500
	Fan Motor Capacitor	μF	12
	Fan Type-Piece	—	Centrifugal fan – 2
	Diameter-Length	mm	φ200 – 190
	Evaporator	—	Aluminum fin-copper tube
	Pipe Diameter	mm	φ7
	Row-Fin Gap	mm	3-1.6
	Coil length (L) x height (H) x coil width (W)	mm	978X304.8X38.1
	Fuse	A	5
	Sound Pressure Level dB (H/M/L)	A	50/48/46
	Sound Power Level dB (H/M/L)	A	60/58/56
	Dimension (W/H/D)	mm	1226/290/775
	Dimension of Package (W/H/D)	mm	1335/305/834
	Net Weight/Gross Weight	kg	53/61

Outdoor Unit				R42PEY1K	
Outdoor unit	Compressor Manufacturer/trademark		—	SANYO	
	Compressor Model		—	C-SBX180H38P	
	Compressor Type		—	SCROLL	
	L.R.A.		A	73	
	Compressor RLA		A	8.06	
	Compressor Power Input		W	4300	
	Overload Protector		—	Auto Reset Thermal Overload	
	Throttling Method		—	Capillary	
	Starting Method		—	Direct	
	Working Temp Range		°C	Cooling: 18°C-52°C	
	Condenser		—	Aluminum fin-copper tube	
	Pipe Diameter		mm	φ9.52	
	Rows-Fin Gap		mm	1-1.4	
	Coil length (L) x height (H) x coil width (W)		mm	1050/1067X22	
	Fan Motor Speed		rpm	820	
	Output of Fan Motor		W	140	
	Fan Motor Capacitor		μF	7	
	Air Flow Volume of Outdoor Unit			6000	
	Fan Type-Piece		—	Axial fan –1	
	Fan Diameter		mm	φ570	
	Climate Type		—	T3	
	Isolation		—	I	
	Moisture Protection		—	IP24	
	Design Pressure (Hi/Lo)		MPa	2.5	0.6
	Sound Pressure Level dB		A	60	
	Sound Power Level dB (H/M/L)		A	70	
	Dimension (W/H/D)		mm	1107/1100/440	
	Dimension of Package (W/H/D)		mm	1170/1220/490	
	Net Weight/Gross Weight		kg	94/104	
	Refrigerant Charge		kg	R22/3.05	
Connection Pipe	Length		m	5	
	Gas additional charge		g/m	120	
	Outer Diameter	Liquid Pipe	Inch	φ1/2"	
		Gas Pipe	Inch	φ3/4"	
	Max Distance	Height	m	30	
		Length	m	50	
Loading Quantity	20' Container		Interior Dimensions L*W*H: 5898*2352*2393, Door Opening W*H: 2343*2280		20
	40' Container		Interior Dimensions L*W*H: 12032*2350*2390, Door Opening W*H: 2343*2280		39
	40' High Cube Container		Interior Dimensions L*W*H: 12032*2350*2697, Door Opening W*H: 2338*2585		48

Model	Outdoor		R48PEY1K
	Indoor		FDM48PEV1K
Function		—	COOLING
Rated Voltage		—	380-415V 3Ph
Rated Frequency		—	50Hz
Total Capacity		(Btu/h)/W	13000 44400
Power Input		W	5400
Rated Current		A	10.4
Max Current		A	14.5
Air Flow Volume (H/M/L)**		m ³ /h	2300/2110/1850
ESP		Pa	50
EER/C.O.P		(Btu/h)/W	8.22
Indoor Unit			FDM48PEV1K
Indoor unit	Fan Motor Speed (H/M/L)	r/min	1320/1090/910
	Output of Fan Motor	W	500
	Fan Motor Capacitor	μF	12
	Fan Type-Piece	—	Centrifugal fan – 2
	Diameter-Length	mm	φ200 – 190
	Evaporator	—	Aluminum fin-copper tube
	Pipe Diameter	mm	φ9.52
	Row-Fin Gap	mm	3-1.8
	Coil length (L) x height (H) x coil width (W)	mm	978X304.8/66
	Fuse	A	5
	Sound Pressure Level dB (H/M/L)	A	53/50/46
	Sound Power Level dB (H/M/L)	A	63/60/56
	Dimension (W/H/D)	mm	1226/290/775
	Dimension of Package (W/H/D)	mm	1335/305/834
	Net Weight/Gross Weight	kg	55/63

Outdoor Unit				R48PEY1K	
Outdoor unit	Compressor Manufacturer/trademark		—	SANYO	
	Compressor Model		—	C-SBX215H38P	
	Compressor Type		—	SCROLL	
	L.R.A.		A	73	
	Compressor RLA		A	9.4	
	Compressor Power Input		W	5350	
	Overload Protector		—	Auto Reset Thermal Overload	
	Throttling Method		—	Capillary	
	Starting Method		—	Direct	
	Working Temp Range		°C	Cooling: 18°C-52°C	
	Condenser		—	Aluminum fin-copper tube	
	Pipe Diameter		mm	φ9.52	
	Rows-Fin Gap		mm	2-1.4	
	Coil length (L) x height (H) x coil width (W)		mm	1050X1067X44	
	Fan Motor Speed		rpm	820	
	Output of Fan Motor		W	140	
	Fan Motor Capacitor		μF	7	
	Air Flow Volume of Outdoor Unit			6000	
	Fan Type-Piece		—	Axial fan –1	
	Fan Diameter		mm	φ570	
	Climate Type		—	T3	
	Isolation		—	I	
	Moisture Protection		—	IP24	
	Design Pressure (Hi/Lo)		MPa	2.5	0.6
	Sound Pressure Level dB		A	60	
	Sound Power Level dB (H/M/L)		A	70	
	Dimension (W/H/D)		mm	1107/1100/440	
	Dimension of Package (W/H/D)		mm	1170/1220/490	
	Net Weight/Gross Weight		kg	107/116	
	Refrigerant Charge		kg	R22/5.0	
Connection Pipe	Length		m	5	
	Gas additional charge		g/m	120	
	Outer Diameter	Liquid Pipe	Inch	φ1/2"	
		Gas Pipe	Inch	φ3/4"	
	Max Distance	Height	m	30	
		Length	m	50	
Loading Quantity	20' Container		Interior Dimensions L*W*H: 5898*2352*2393, Door Opening W*H: 2343*2280		20
	40' Container		Interior Dimensions L*W*H: 12032*2350*2390, Door Opening W*H: 2343*2280		39
	40' High Cube Container		Interior Dimensions L*W*H: 12032*2350*2697, Door Opening W*H: 2338*2585		48

Model	Outdoor		RY24PEV1K	
	Indoor		FDYM24PEV1K	
Function		—	COOLING	HEATING
Rated Voltage		—	220-240V 1Ph	
Rated Frequency		—	50Hz	
Total Capacity		(Btu/h)/W	6800 23200	7500 25500
Power Input		W	2500	2450
Rated Current		A	11.9	12.4
Max Current		A	18.3	15.8
Air Flow Volume (H/M/L)**		m ³ /h	1600/1400/1200	
ESP		Pa	25	
EER/C.O.P		(Btu/h)/W	9.28	3.06
Indoor Unit			FDYM24PEV1K	
Indoor unit	Fan Motor Speed (H/M/L)	r/min	1250/1220/1060	
	Output of Fan Motor	W	150	
	Fan Motor Capacitor	μF	8	
	Fan Type-Piece	—	Centrifugal fan – 2	
	Diameter-Length	mm	φ160 – 200	
	Evaporator	—	Aluminum fin-copper tube	
	Pipe Diameter	mm	φ9.52	
	Row-Fin Gap	mm	2-1.8	
	Coil length (L) x height (H) x coil width (W)	mm	1002X253X44	
	Fuse	A	5	
	Sound Pressure Level dB (H/M/L)	A	47/44/42	
	Sound Power Level dB (H/M/L)	A	57/54/52	
	Dimension (W/H/D)	mm	1270/268/530	
	Dimension of Package (W/H/D)	mm	1345/283/594	
	Net Weight/Gross Weight	kg	36/42	

Outdoor Unit				RY24PEV1K		
Outdoor unit	Compressor ManuFacterer/trademark		—	Mitsubishi		
	Compressor Model		—	LHT42VBAC		
	Compressor Type		—	Rotary		
	L.R.A.		A	66		
	Compressor RLA		A	11.2		
	Compressor Power Input		W	2390		
	Overload Protector		—	Auto Reset Thermal Overload		
	Throttling Method		—	Capillary		
	Starting Method		—	Start directly		
	Working Temp Range		°C	Cooling: 18°C-52°C	Heating: -7°C-24°C	
	Condenser		—	Aluminum fin-copper tube		
	Pipe Diameter		mm	φ9.52		
	Rows-Fin Gap		mm	2-1.5		
	Coil length (L) x height (H) x coil width (W)		mm	744X660X44		
	Fan Motor Speed		rpm	940		
	Output of Fan Motor		W	92		
	Fan Motor Capacitor		μF	4		
	Air Flow Volume of Outdoor Unit			3200		
	Fan Type-Piece		—	Axial fan –1		
	Fan Diameter		mm	φ450		
	Defrosting Method		—	Auto defrost		
	Climate Type		—	T3		
	Isolation		—	I		
	Moisture Protection		—	IP24		
	Design Pressure (Hi/Lo)		MPa	2.5	0.6	
	Sound Pressure Level dB		A	59		
	Sound Power Level dB (H/M/L)		A	69		
	Dimension (W/H/D)		mm	1018/695/412		
	Dimension of Package (W/H/D)		mm	1100/755/450		
	Net Weight/Gross Weight		kg	67/71		
	Refrigerant Charge		kg	R22/2.5		
Connection Pipe	Length		m	5		
	Gas additional charge		g/m	60		
	Outer Diameter	Liquid Pipe	Inch	φ3/8”		
		Gas Pipe	Inch	φ5/8”		
	Max Distance	Height	m	15		
		Length	m	30		
Loading Quantity	20' Container		Interior Dimensions L*W*H: 5898*2352*2393, Door Opening W*H: 2343*2280		37	
	40' Container		Interior Dimensions L*W*H: 12032*2350*2390, Door Opening W*H: 2343*2280		88	
	40' High Cube Container		Interior Dimensions L*W*H: 12032*2350*2697, Door Opening W*H: 2338*2585		99	

Model	Outdoor		RY30PEV1K	
	Indoor		FDYM30PEV1K	
Function		—	COOLING	HEATING
Rated Voltage		—	220-240V 1Ph	
Rated Frequency		—	50Hz	
Total Capacity		(Btu/h)/W	7700 26300	9400 32100
Power Input		W	2950	3300
Rated Current		A	14.5	16.8
Max Current		A	21.0	19.0
Air Flow Volume (H/M/L)**		m ³ /h	1500/1300/1100	
ESP		Pa	37	
EER/C.O.P		(Btu/h)/W	8.92	2.85
Indoor Unit			FDYM30PEV1K	
Indoor unit	Fan Motor Speed (H/M/L)	r/min	1250/1220/1060	
	Output of Fan Motor	W	150	
	Fan Motor Capacitor	μF	8	
	Fan Type-Piece	—	Centrifugal fan – 2	
	Diameter-Length	mm	φ160 – 200	
	Evaporator	—	Aluminum fin-copper tube	
	Pipe Diameter	mm	φ9.52	
	Row-Fin Gap	mm	2-1.8	
	Coil length (L) x height (H) x coil width (W)	mm	1002X253X44	
	Fuse	A	5	
	Sound Pressure Level dB (H/M/L)	A	47/44/42	
	Sound Power Level dB (H/M/L)	A	57/54/52	
	Dimension (W/H/D)	mm	1270/268/530	
	Dimension of Package (W/H/D)	mm	1345/283/594	
	Net Weight/Gross Weight	kg	36/42	

Outdoor Unit				RY30PEV1K		
Outdoor unit	Compressor ManuFacterer/trademark		—	Mitsubishi		
	Compressor Model		—	LHT53VBAC		
	Compressor Type		—	Rotary		
	L.R.A.		A	76		
	Compressor RLA		A	14.8		
	Compressor Power Input		W	3050		
	Overload Protector		—	Auto Reset Thermal Overload		
	Throttling Method		—	Capillary		
	Starting Method		—	Start directly		
	Working Temp Range		°C	Cooling: 18°C-52°C	Heating: -7°C-24°C	
	Condenser		—	Aluminum fin-copper tube		
	Pipe Diameter		mm	φ9.52		
	Rows-Fin Gap		mm	2-1.6		
	Coil length (L) x height (H) x coil width (W)		mm	976X762X44		
	Fan Motor Speed		rpm	780		
	Output of Fan Motor		W	125		
	Fan Motor Capacitor		μF	7		
	Air Flow Volume of Outdoor Unit			4200		
	Fan Type-Piece		—	Axial fan –1		
	Fan Diameter		mm	φ552		
	Defrosting Method		—	Auto defrost		
	Climate Type		—	T3		
	Isolation		—	I		
	Moisture Protection		—	IP24		
	Design Pressure (Hi/Lo)		MPa	2.5	0.6	
	Sound Pressure Level dB		A	58		
	Sound Power Level dB (H/M/L)		A	68		
	Dimension (W/H/D)		mm	980/790/427		
	Dimension of Package (W/H/D)		mm	1080/840/485		
	Net Weight/Gross Weight		kg	74/78		
	Refrigerant Charge		kg	R22/3.4		
Connection Pipe	Length		m	5		
	Gas additional charge		g/m	60		
	Outer Diameter	Liquid Pipe	Inch	φ3/8”		
		Gas Pipe	Inch	φ5/8”		
	Max Distance	Height	m	15		
		Length	m	30		
Loading Quantity	20' Container		Interior Dimensions L*W*H: 5898*2352*2393, Door Opening W*H: 2343*2280		34	
	40' Container		Interior Dimensions L*W*H: 12032*2350*2390, Door Opening W*H: 2343*2280		74	
	40' High Cube Container		Interior Dimensions L*W*H: 12032*2350*2697, Door Opening W*H: 2338*2585		83	

Model	Outdoor		RY36PEY1K	
	Indoor		FDYM36PEV1K	
Function		—	COOLING	HEATING
Rated Voltage		—	380-415V 3Ph	
Rated Frequency		—	50Hz	
Total Capacity		(Btu/h)/W	9700 33000	12000 41000
Power Input		W	3900	3450
Rated Current		A	7.2	6.7
Max Current		A	10.3	8.0
Air Flow Volume (H/M/L)**		m ³ /h	2000/1900/1800	
ESP		Pa	37	
EER/C.O.P		(Btu/h)/W	8.46	3.48
Indoor Unit			FDYM36PEV1K	
Indoor unit	Fan Motor Speed (H/M/L)	r/min	1320/1090/910	
	Output of Fan Motor	W	500	
	Fan Motor Capacitor	μF	12	
	Fan Type-Piece	—	Centrifugal fan – 2	
	Diameter-Length	mm	φ200 – 190	
	Evaporator	—	Aluminum fin-copper tube	
	Pipe Diameter	mm	φ7	
	Row-Fin Gap	mm	3-1.6	
	Coil length (L) x height (H) x coil width (W)	mm	978X304.8X38.1	
	Fuse	A	5	
	Sound Pressure Level dB (H/M/L)	A	50/48/46	
	Sound Power Level dB (H/M/L)	A	60/58/56	
	Dimension (W/H/D)	mm	1226/290/775	
	Dimension of Package (W/H/D)	mm	1335/305/834	
	Net Weight/Gross Weight	kg	53/61	

Outdoor Unit				RY36PEY1K		
Outdoor unit	Compressor ManuFacterer/trademark		—	SANYO		
	Compressor Model		—	C-SBR145H38P		
	Compressor Type		—	SCROLL		
	L.R.A.		A	53		
	Compressor RLA		A	6.5		
	Compressor Power Input		W	3650		
	Overload Protector		—	Auto Reset Thermal Overload		
	Throttling Method		—	Capillary		
	Starting Method		—	Start directly		
	Working Temp Range		°C	Cooling: 18°C-52°C	Heating: -7°C-24°C	
	Condenser		—	Aluminum fin-copper tube		
	Pipe Diameter		mm	φ9.52		
	Rows-Fin Gap		mm	2-1.4		
	Coil length (L) x height (H) x coil width (W)		mm	964X813X44		
	Fan Motor Speed		rpm	920		
	Output of Fan Motor		W	92		
	Fan Motor Capacitor		μF	4		
	Air Flow Volume of Outdoor Unit			4000		
	Fan Type-Piece		—	Axial fan –1		
	Fan Diameter		mm	φ482		
	Defrosting Method		—	Auto defrost		
	Climate Type		—	T3		
	Isolation		—	I		
	Moisture Protection		—	IP24		
	Design Pressure (Hi/Lo)		MPa	2.5	0.6	
	Sound Pressure Level dB		A	61		
	Sound Power Level dB (H/M/L)		A	71		
	Dimension (W/H/D)		mm	1018/840/412		
	Dimension of Package (W/H/D)		mm	1100/985/450		
	Net Weight/Gross Weight		kg	90/98		
	Refrigerant Charge		kg	R22/3.6		
Connection Pipe	Length		m	5		
	Gas additional charge		g/m	120		
	Outer Diameter	Liquid Pipe	Inch	φ1/2”		
		Gas Pipe	Inch	φ3/4”		
	Max Distance	Height	m	30		
		Length	m	50		
Loading Quantity	20' Container		Interior Dimensions L*W*H: 5898*2352*2393, Door Opening W*H: 2343*2280		30	
	40' Container		Interior Dimensions L*W*H: 12032*2350*2390, Door Opening W*H: 2343*2280		60	
	40' High Cube Container		Interior Dimensions L*W*H: 12032*2350*2697, Door Opening W*H: 2338*2585		66	

Model	Outdoor		RY42PEY1K	
	Indoor		FDYM42PEV1K	
Function		—	COOLING	HEATING
Rated Voltage		—	380-415V 3Ph	
Rated Frequency		—	50Hz	
Total Capacity		(Btu/h)/W	11300 38600	13500 46100
Power Input		W	4800	4150
Rated Current		A	9.3	8.1
Max Current		A	12.5	9.7
Air Flow Volume (H/M/L)**		m ³ /h	2000/1900/1800	
ESP		Pa	37	
EER/C.O.P		(Btu/h)/W	8.04	3.25
Indoor Unit			FDYM42PEV1K	
Indoor unit	Fan Motor Speed (H/M/L)	r/min	1320/1090/910	
	Output of Fan Motor	W	500	
	Fan Motor Capacitor	μF	12	
	Fan Type-Piece	—	Centrifugal fan – 2	
	Diameter-Length	mm	φ200 – 190	
	Evaporator	—	Aluminum fin-copper tube	
	Pipe Diameter	mm	φ7	
	Row-Fin Gap	mm	3-1.6	
	Coil length (L) x height (H) x coil width (W)	mm	978X304.8X38.1	
	Fuse	A	5	
	Sound Pressure Level dB (H/M/L)	A	50/48/46	
	Sound Power Level dB (H/M/L)	A	60/58/56	
	Dimension (W/H/D)	mm	1226/290/775	
	Dimension of Package (W/H/D)	mm	1335/305/834	
	Net Weight/Gross Weight	kg	53/61	

Outdoor Unit				RY42PEY1K		
Outdoor unit	Compressor Manufacturer/trademark		—	SANYO		
	Compressor Model		—	C-SBX180H38P		
	Compressor Type		—	SCROLL		
	L.R.A.		A	73		
	Compressor RLA		A	8.06		
	Compressor Power Input		W	4300		
	Overload Protector		—	Auto Reset Thermal Overload		
	Throttling Method		—	Capillary		
	Starting Method		—	Direct		
	Working Temp Range		°C	Cooling: 18°C-52°C	Heating: -7°C-24°C	
	Condenser		—	Aluminum fin-copper tube		
	Pipe Diameter		mm	φ9.52		
	Rows-Fin Gap		mm	1-1.4		
	Coil length (L) x height (H) x coil width (W)		mm	1050X1067X22		
	Fan Motor Speed		rpm	820		
	Output of Fan Motor		W	140		
	Fan Motor Capacitor		μF	7		
	Air Flow Volume of Outdoor Unit			6000		
	Fan Type-Piece		—	Axial fan –1		
	Fan Diameter		mm	φ570		
	Defrosting Method		—	Auto defrost		
	Climate Type		—	T3		
	Isolation		—	I		
	Moisture Protection		—	IP24		
	Design Pressure (Hi/Lo)		MPa	2.5	0.6	
	Sound Pressure Level dB		A	61		
	Sound Power Level dB (H/M/L)		A	71		
	Dimension (W/H/D)		mm	1107/1100/440		
	Dimension of Package (W/H/D)		mm	1170/1220/490		
	Net Weight/Gross Weight		kg	96/105		
	Refrigerant Charge		kg	R22/3.05		
Connection Pipe	Length		m	5		
	Gas additional charge		g/m	120		
	Outer Diameter	Liquid Pipe	Inch	φ1/2”		
		Gas Pipe	Inch	φ3/4”		
	Max Distance	Height	m	30		
		Length	m	50		
Loading Quantity	20' Container		Interior Dimensions L*W*H: 5898*2352*2393, Door Opening W*H: 2343*2280		20	
	40' Container		Interior Dimensions L*W*H: 12032*2350*2390, Door Opening W*H: 2343*2280		39	
	40' High Cube Container		Interior Dimensions L*W*H: 12032*2350*2697, Door Opening W*H: 2338*2585		48	

Model	Outdoor		RY48PEY1K	
	Indoor		FDYM48PEV1K	
Function		—	COOLING	HEATING
Rated Voltage		—	380-415V 3Ph	
Rated Frequency		—	50Hz	
Total Capacity		(Btu/h)/W	13000 44400	14100 48200
Power Input		W	5500	4750
Rated Current		A	10.2	9.1
Max Current		A	18.6	12.6
Air Flow Volume (H/M/L)**		m ³ /h	2300/2110/1850	
ESP		Pa	50	
EER/C.O.P		(Btu/h)/W	8.07	2.97
Indoor Unit			FDYM48PEV1K	
Indoor unit	Fan Motor Speed (H/M/L)	r/min	1320/1090/910	
	Output of Fan Motor	W	500	
	Fan Motor Capacitor	μF	12	
	Fan Type-Piece	—	Centrifugal fan – 2	
	Diameter-Length	mm	φ200 – 190	
	Evaporator	—	Aluminum fin-copper tube	
	Pipe Diameter	mm	φ9.52	
	Row-Fin Gap	mm	3-1.8	
	Coil length (L) x height (H) x coil width (W)	mm	978X304.8X66	
	Fuse	A	5	
	Sound Pressure Level dB (H/M/L)	A	53/50/46	
	Sound Power Level dB (H/M/L)	A	63/60/56	
	Dimension (W/H/D)	mm	1226/290/775	
	Dimension of Package (W/H/D)	mm	1335/305/834	
	Net Weight/Gross Weight	kg	55/63	

Outdoor Unit				RY48PEY1K		
Outdoor unit	Compressor ManuFacterer/trademark		—	SANYO		
	Compressor Model		—	C-SBX215H38P		
	Compressor Type		—	SCROLL		
	L.R.A.		A	73		
	Compressor RLA		A	9.4		
	Compressor Power Input		W	5350		
	Overload Protector		—	Auto Reset Thermal Overload		
	Throttling Method		—	Capillary		
	Starting Method		—	Direct		
	Working Temp Range		°C	Cooling: 18°C-52°C	Heating: -7°C-24°C	
	Condenser		—	Aluminum fin-copper tube		
	Pipe Diameter		mm	φ9.52		
	Rows-Fin Gap		mm	2-1.4		
	Coil length (L) x height (H) x coil width (W)		mm	1050X1067X44		
	Fan Motor Speed		rpm	820		
	Output of Fan Motor		W	140		
	Fan Motor Capacitor		μF	7		
	Air Flow Volume of Outdoor Unit			6000		
	Fan Type-Piece		—	Axial fan –1		
	Fan Diameter		mm	φ570		
	Defrosting Method		—	Auto defrost		
	Climate Type		—	T3		
	Isolation		—	I		
	Moisture Protection		—	IP24		
	Design Pressure (Hi/Lo)		MPa	2.5	0.6	
	Sound Pressure Level dB		A	60		
	Sound Power Level dB (H/M/L)		A	70		
	Dimension (W/H/D)		mm	1107/1100/440		
	Dimension of Package (W/H/D)		mm	1170/1220/490		
	Net Weight/Gross Weight		kg	108/117		
	Refrigerant Charge		kg	R22/5.0		
Connection Pipe	Length		m	5		
	Gas additional charge		g/m	120		
	Outer Diameter	Liquid Pipe	Inch	φ1/2”		
		Gas Pipe	Inch	φ3/4”		
	Max Distance	Height	m	30		
		Length	m	50		
Loading Quantity	20' Container		Interior Dimensions L*W*H: 5898*2352*2393; Door Opening W*H: 2343*2280		20	
	40' Container		Interior Dimensions L*W*H: 12032*2350*2390; Door Opening W*H: 2343*2280		39	
	40' High Cube Container		Interior Dimensions L*W*H: 12032*2350*2697; Door Opening W*H: 2338*2585		48	

Note:

- ① Nominal capacities are based on the follow conditions.

	Indoor	Outdoor
Cooling	DB: 27°C (80.6°F) WB: 19°C (66.2°F)	DB: 35°C (95°F) WB: 24°C (75.2°F)
Heating	DB: 20°C (68°F) WB: --°C (--°F)	DB: 7°C (44.6°F) WB: 6°C (42.8°F)
Piping Length	5m	

- ② The air volume is measured at the relevant standard external static pressure.
- ③ Noise is tested in the Semi shield room, so it should be slightly higher in the actual operation due to environmental change.

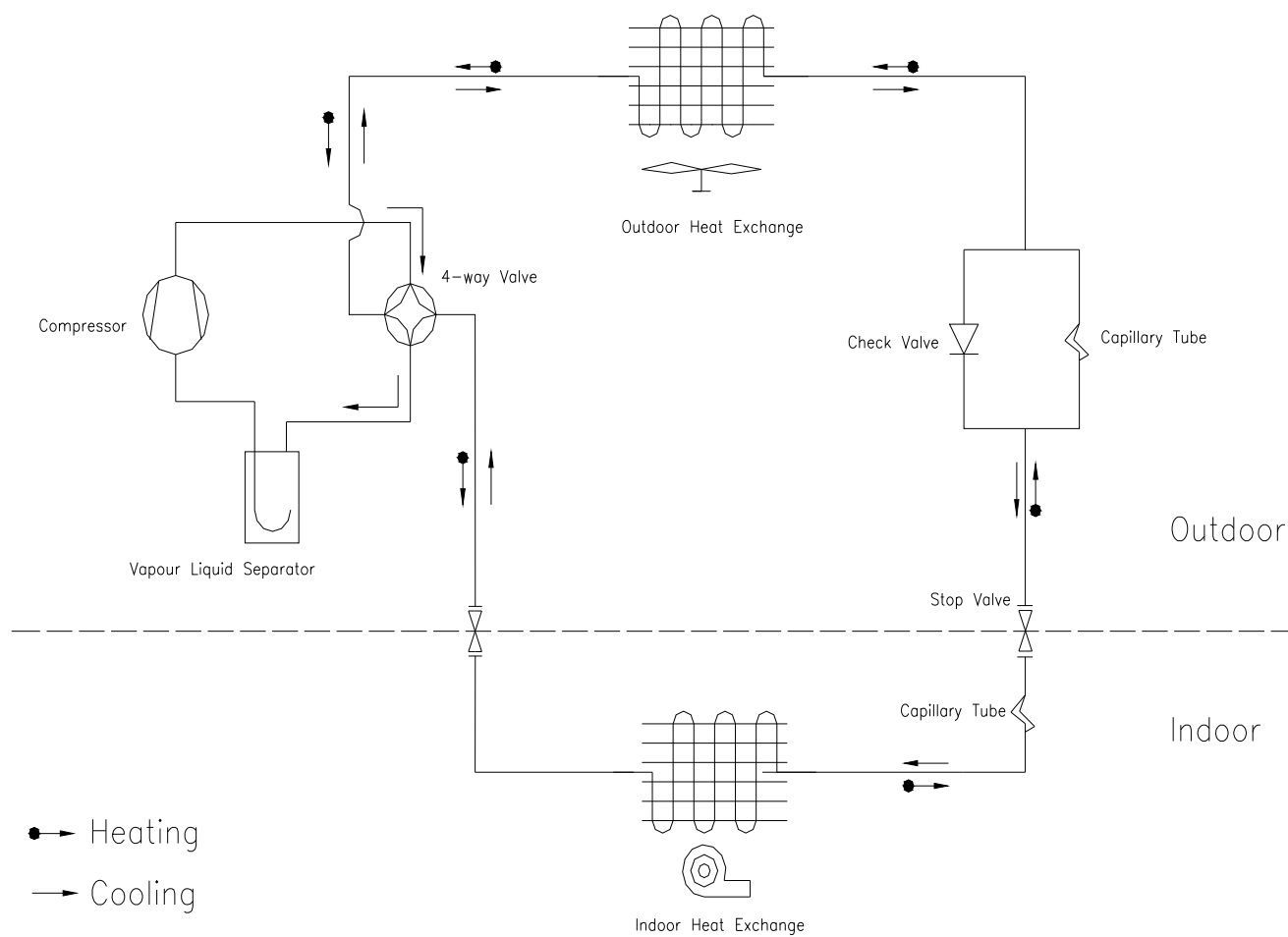
4.2 Electrical Data

Model		Compressor				Fan Motor		Max. Fuse Breaker Size (Indoor/Outdoor)	Min. Disconnect Size (Indoor/Outdoor)
		Power Supply	Qty.	LRA	RLA	Condenser Fan Motors	Supply Blower Motor		
		V,Ph,HZ	—	Each	Each	FLA Each	FLA Each	Amps	Amps
FD(Y)M24PEV1K	R(Y)24PEV1K	220-240V 1PH 50Hz	1	66	11.2	0.61	1.35	6/25	2.5/14.6
FD(Y)M30PEV1K	R(Y) 30PEV1K		1	76	14.8	0.8	1.35	6/25	2.5/19.3
FD(Y)M36PEV1K	R(Y)36PEY1K	380-415V 3PH 50Hz	1	53	6.5	0.8	4.5	10/20	5.7/9.1
FD(Y)M42PEV1K	R(Y)42PEY1K		1	73	8.06	0.8	4.5	10/25	5.7/10.2
FD(Y)M48PEV1K	R(Y)48PEY1k		1	73	9.4	0.8	4.5	10/25	5.7/11.1

Notes:

RLA: Rated load amperes
 LRA: Locked rotor amperes
 FLA: Full load amperes

5. PIPING DIAGRAM



Part 2

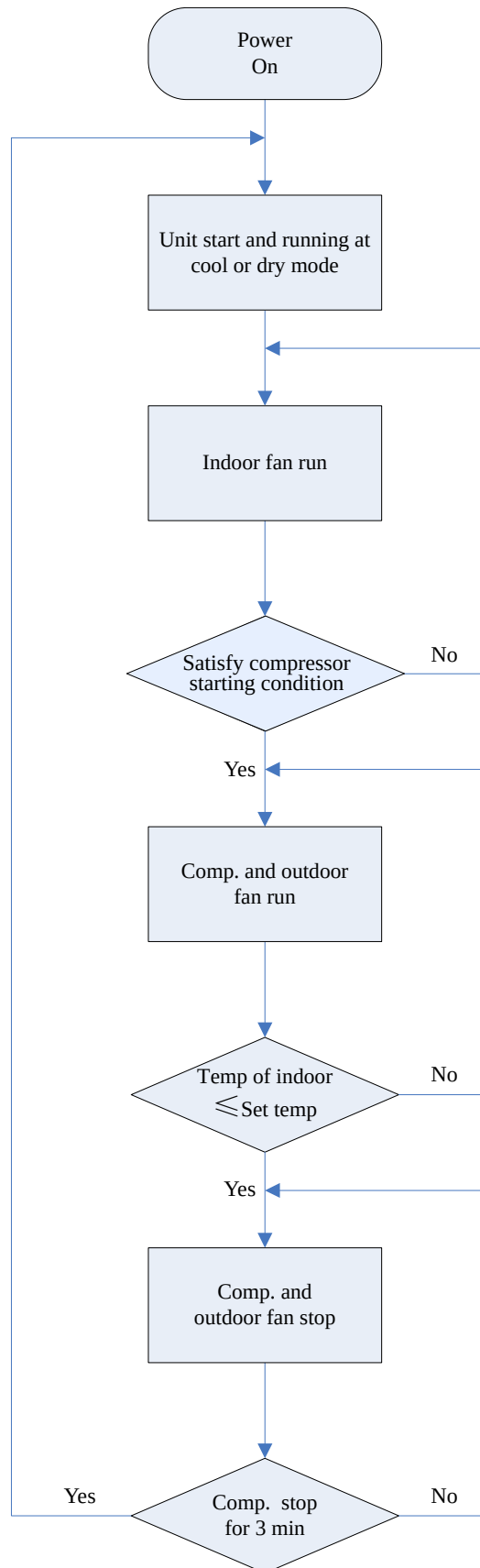
FUNCTION CONTROL

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1. OPERATION FLOWCHART

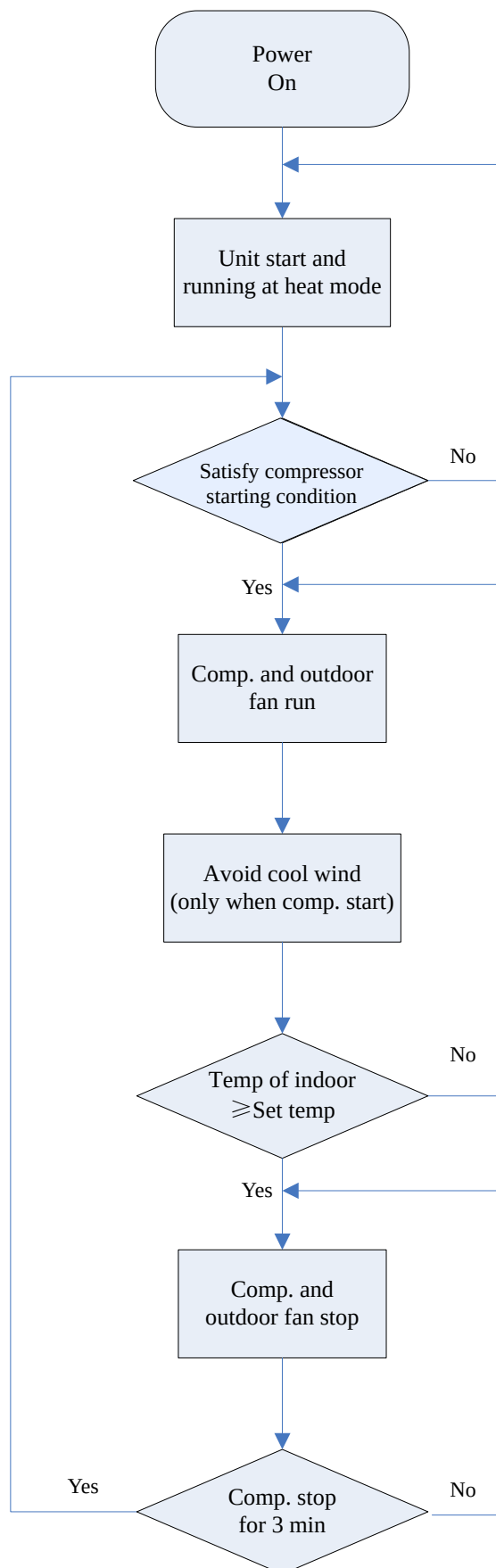
1.1 Cooling/Dry Operation

The operation flowchart for cooling/dry operation is as follows.



1.2 Heating Operation

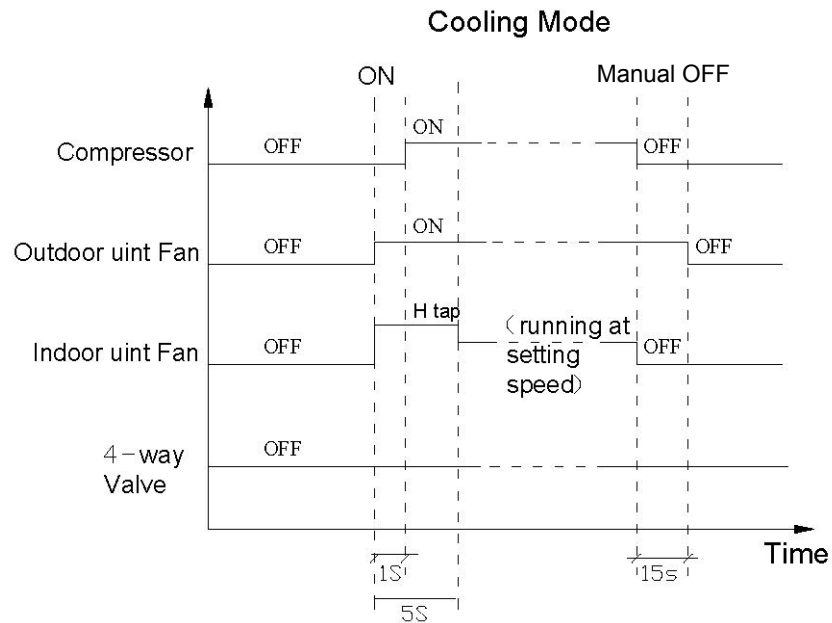
The operation flowchart for heating operation is as follows.



2. MAIN LOGIC

2.1 Cooling Mode

Cooling mode operation is as follows.

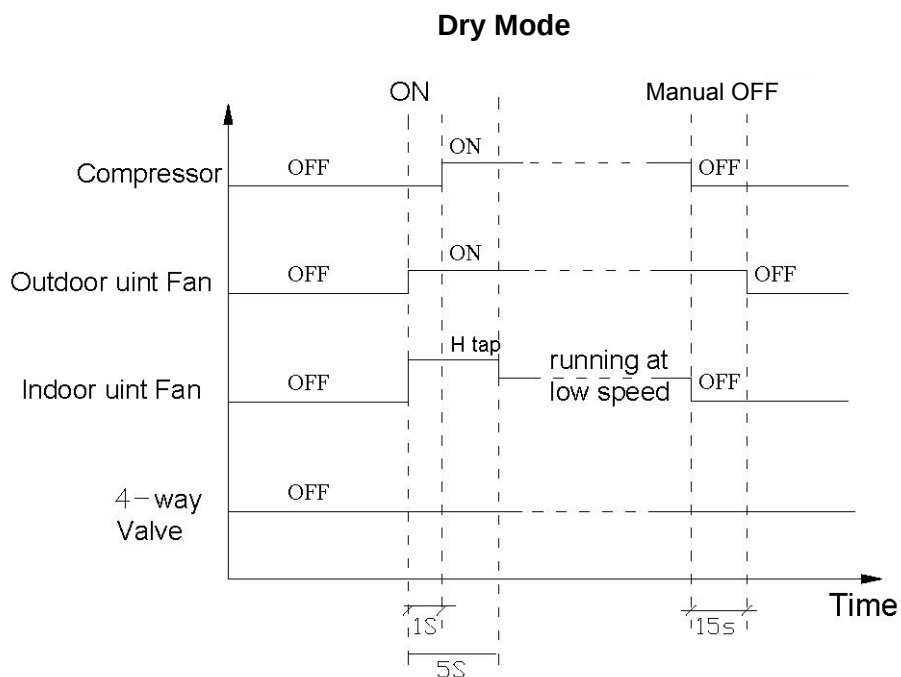


$T_{amb} \geq T_{set} + 1^{\circ}\text{C}$: Cooling mode will be entered. In that case, the compressor and outdoor unit fan runs and indoor unit fan runs at setting speed.

$T_{amb} \leq T_{set} - 1^{\circ}\text{C}$: Cooling OFF status will be entered. In that case, the compressor and outdoor unit fan stop and indoor unit fan runs at setting speed.

2.2 Dry Mode

Dry mode operation is as follows



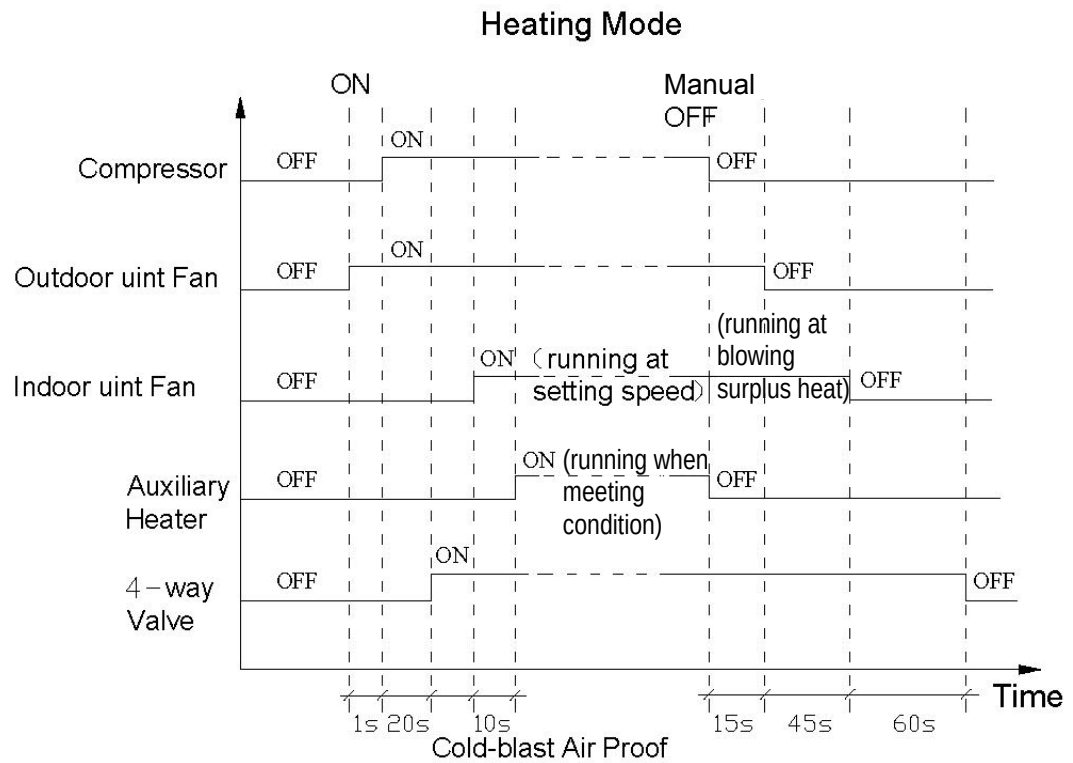
$T_{amb} \geq T_{set} + 2^{\circ}\text{C}$: Cooling mode will be entered. In that case, the compressor and outdoor unit fan runs and indoor unit fan runs at low speed.

$T_{amb} \leq T_{set} - 2^{\circ}\text{C}$: Cooling OFF status will be entered. In that case, the compressor and outdoor unit fan stop running.

$T_{set} - 2^{\circ}\text{C} < T_{amb} < T_{set} + 2^{\circ}\text{C}$: ON-OFF alternated status will be entered. In that case, after compressor is running for continuous 6min, it will stop for another continuous 4min, which will be circularly executed. The indoor unit fan runs at low speed.

2.3 Heating Mode

Heating mode operation is as follows.



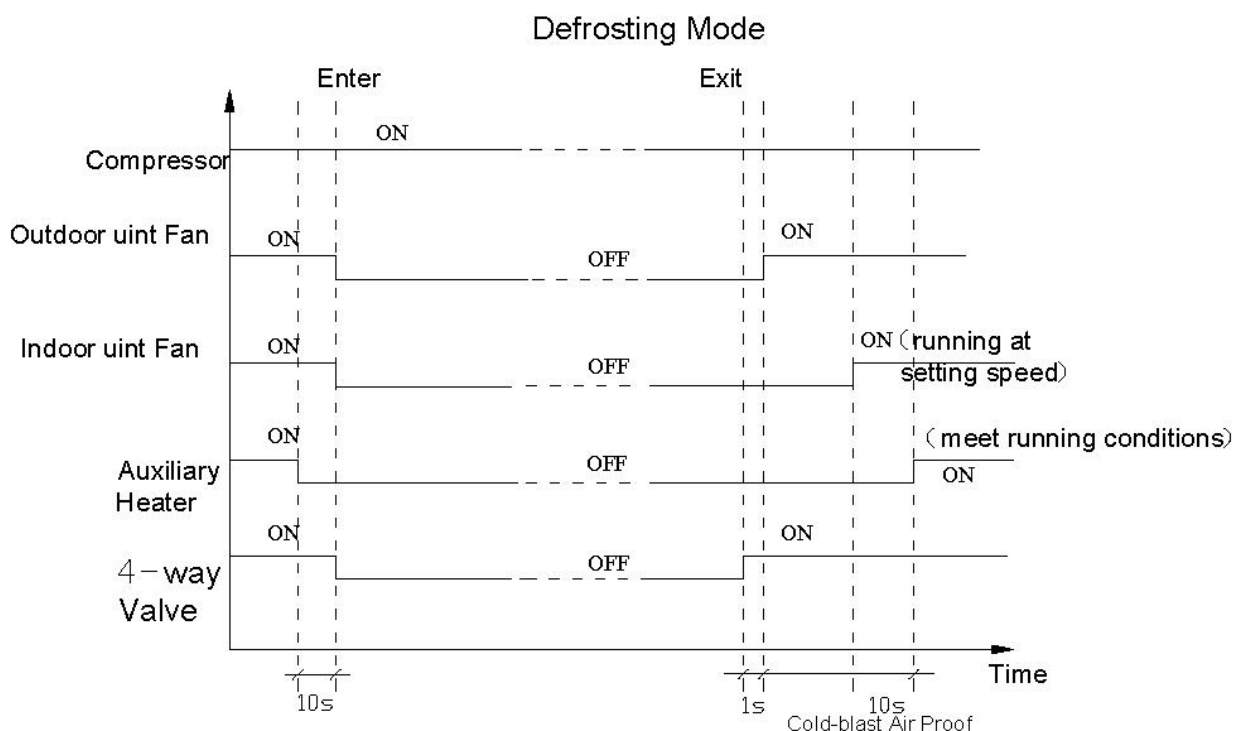
$T_{amb} \leq T_{set} - 1^{\circ}\text{C}$: Heating mode will be entered. The compressor and outdoor unit fan will run and indoor unit fan will run at setting speed and the mode of cold-blast air prevention.

$T_{amb} \geq T_{set} + 1^{\circ}\text{C}$: The compressor and outdoor unit fan will stop but the 4-way valve will be still energized. Indoor unit fan will run at the mode of blowing surplus heat.

$T_{set} - 1^{\circ}\text{C} < T_{amb} < T_{set} + 1^{\circ}\text{C}$: Previous running status will be kept.

2.4 Defrosting

Defrosting mode is as follows.

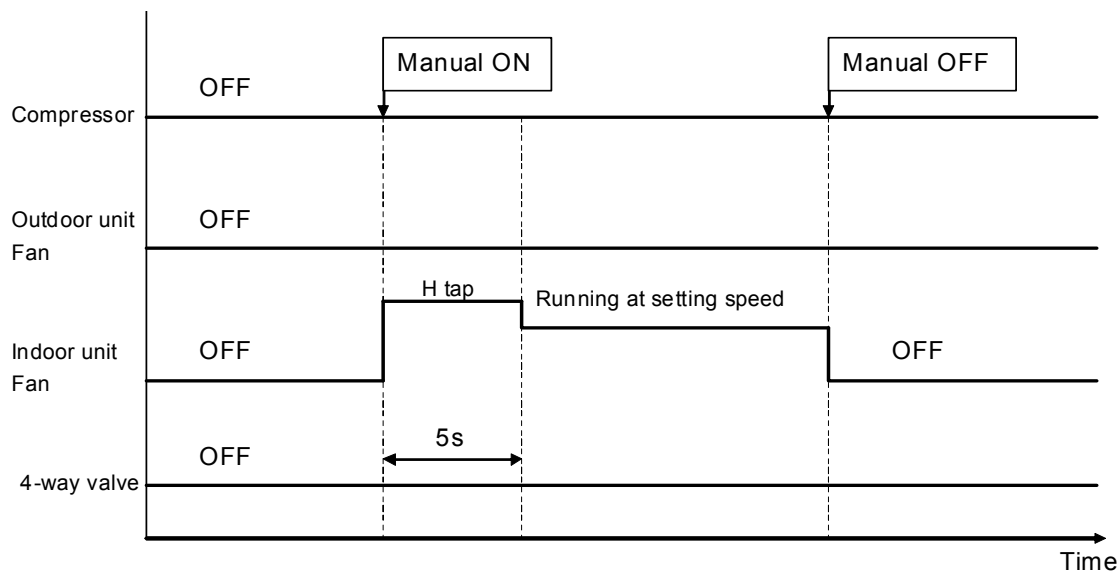


Conditions of Defrosting ON: When accumulated heating time has reached 44min, the compressor has been running for continuous 4min and 50sec, and $T_{con} \leq -5^{\circ}\text{C}$ has been detected for continuous 1min, defrosting starts. If auxiliary heater is ON, it will be stopped firstly. At 10s later, 4-way valve, indoor and outdoor unit fans will be stopped while the compressor will compulsively run.

Conditions of Defrosting OFF: When defrosting has been running for 10min or $T_{con} \geq 10^{\circ}\text{C}$, defrosting finishes. 4-way valve and outdoor unit fan will run while the compressor will forcibly run. The indoor unit fan will run at the mode of cold-blast air proof.

2.5 Fan Mode

Air supply mode



The indoor unit fan will firstly run at high speed for 5 seconds and then run at setting speed.

3. WIRED REMOTE CONTROLLER

3.1 Displaying Part



Fig.3.1.1 Outline of wired controller

3.1.1 LCD Display of Wired Controller

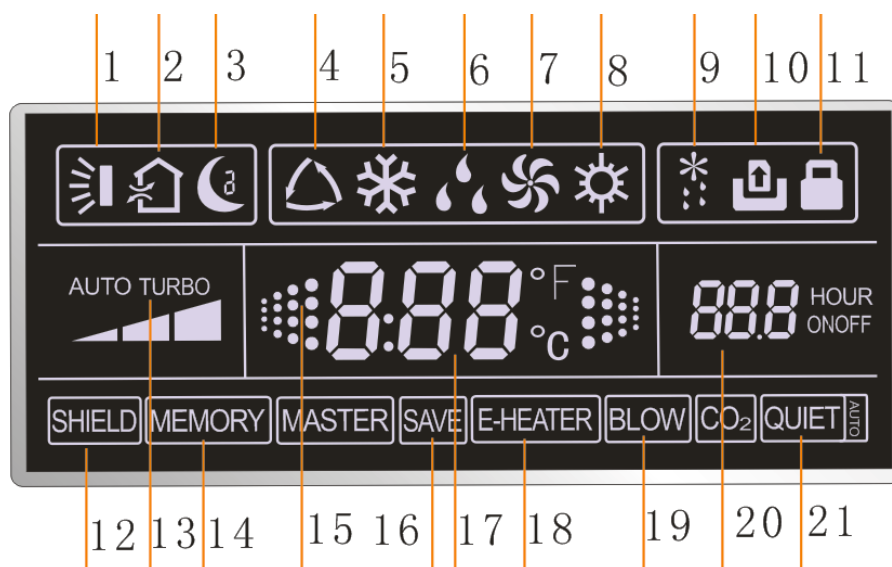


Fig.3.1.2 LCD display

3.1.2 Instruction to LCD Display

No.	Description	Instruction to Displaying Contents
1	Swing *	Swing function
2	Air *	Air exchange function
3	Sleep	Sleeping states
4	Running mode	Each kind of running mode of indoor unit (auto mode)
5	Cooling	Cooling mode
6	Dry	Dry mode
7	Fan	Fan mode
8	Heating	Heating mode
9	Defrost	Defrosting state
10	Gate-control card *	Gate control
11	Lock	Lock state
12	Shield	Shielding state (buttons, temperature, on/off, mode or save is shielded by long-distance monitoring)
13	Turbo	Turbo function state
14	Memory	Memory state (Indoor unit resumes original setting state after power failure and then power recovery)
15	Twinkle	Flicking when unit is on without operation of buttons
16	Save	Energy-saving state
17	Temperature	Ambient/setting temperature value
18	E-Heater *	E-HEATER display means electric-heater is available
19	Blow	Blow mark
20	Timer	Timer-displayed location
21	Quiet	Quiet state(two types: quiet and auto quiet)
Notes: The functions with * are reserved for other models and are not applicable for the models listed in this manual.		

Table 3.1

3.2 Buttons

3.2.1 Silk Screen of Buttons



Fig.3.2.1 Silk screen of buttons

3.2.2 Instruction to Function of Buttons

No.	Description	Function of Button
1	Enter/Cancel	(1) Function selection and canceling; (2) Press it for 5s to enter the outdoor ambient temperature display.
2	▲	(1) Temperature setting of indoor unit, range :16~30°C (2) Timer setting, range:0.5-24hr (3) Switchover between quiet/auto quiet
6	▼	
3	Fan	Setting of high/middle/low/auto fan speed
4	Mode	Setting of cooling/heating/fan/dry mode of indoor unit
5	Function	Switch over among these functions of air/sleep/turbo/save/e-heater/blow/quite
7	Timer	Timer setting
8	On/Off	Turn on/off indoor unit
4 Mode and 2 ▲	Memory function	Press Mode and ▲ for 5s under off-state of the unit to enter/cancel key memory function (If memory is set, indoor unit will resume original setting state after power failure and then power recovery. If not, indoor unit is defaulted to be off after power recovery. Memory function is defaulted to be off before outgoing.)
2 ▲ and 6 ▼	Lock	Upon startup of the unit without malfunction or under off-state of the unit, press ▲ ▼ key at the same time for 5s in to lock state. In this case, any other buttons won't respond the press. Repress ▲ ▼ key for 5s to quit lock state.
4 Mode and 5 Function	Enquiry and setting of address of wired controller	Under the off-state of the unit, press Mode/Function button for 5 seconds to set the address.

5 Function And 7Timer	Setting Ambient Temperature Sensor and three Grades of Speed for Indoor Fan	Under off-state of the unit, press Function and Timer buttons continuously for 5s into debugging menu. Press Mode button to adjust the setting items and ▲ or ▼ button to set the actual value.
5 Function and 6 ▼	Enquiry of Historical Errors	Continuously press Function and ▼ buttons without lock for 5s into enquiry state. In this state, press Enter/Cancel button to quit, or it will automatically quit after there is not any operation of button in 30min

Table 3.2

3.3 Installation of Wired Controller and Project Debugging

3.3.1 Installation of Wired Controller

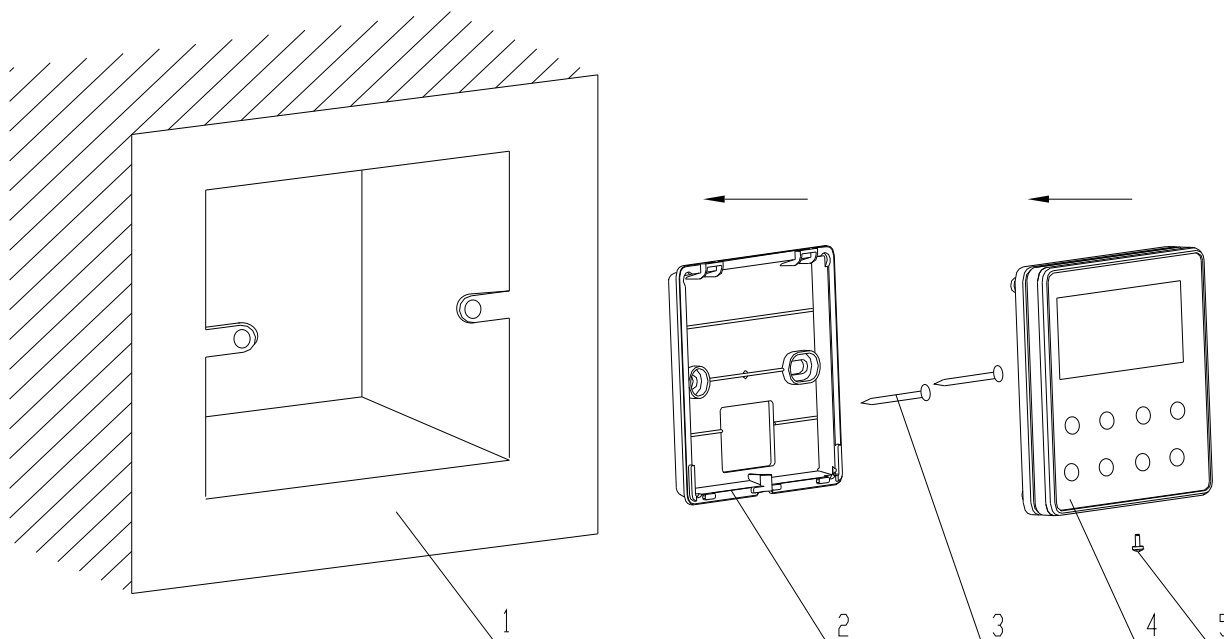


Fig.3.3.1: Sketch for Installation of Wired Controller

No.	1	2	3	4	5
Description	Socket's base box installed in the wall	Soleplate of controller	Screw M4X25	Front panel of controller	Screw ST2.2X6.5

Fig.3.3.1: Sketch for Installation of Wired Controller. Pay attention to the following items during installation of wired controller:

1. Cut off power supply of heavy-current wire embedded in mounting hole in the wall before installation. It is prohibited to perform the whole procedure with electricity.
2. Pull out 4-core twisted pair line in mounting hole and then make it through the rectangle hole at the back of controller's soleplate.
3. Joint the controller's soleplate on wall face and then fix it in mounting hole with screws M4X25.
4. Insert the 4-core twisted pair line through rectangle hole into controller's slot and buckle the front panel and soleplate of controller together.
5. At last, fix the controller's front panel and soleplate with screws ST2.2X6.5.



Caution:

During connection of wirings, pay special attention to the following items to avoid interference of electromagnetism to unit and even failure of it.

1. To ensure normal communication of the unit, signal line and wiring (communication) of wired controller should separate from power cord and indoor/outdoor connection lines. The distance between them should be kept 20cm in min.
2. If the unit is installed at the place where there is interference of electromagnetism, signal line and wiring (communication) of wired controller must be shielded on twisted pair lines.

3.3.2 Project Debugging

Enquiry of wired controller's address: Press Function and Mode buttons at the same time for 5s under off-state of the unit, and then LCD displays wired controller's address number.

Setting of wired controller's address: Press Function and Mode buttons at the same time for 5s. In this case, LCD displays address number. Then press ▲ or ▼ button to adjust address (address no.:1-16). After that, press Enter/Cancel button to confirm.

Addresses of the wired controller are used for centralized control of wired controller. Enquiry and setting of wired controller's address is shown as Fig.3.3.2 below:

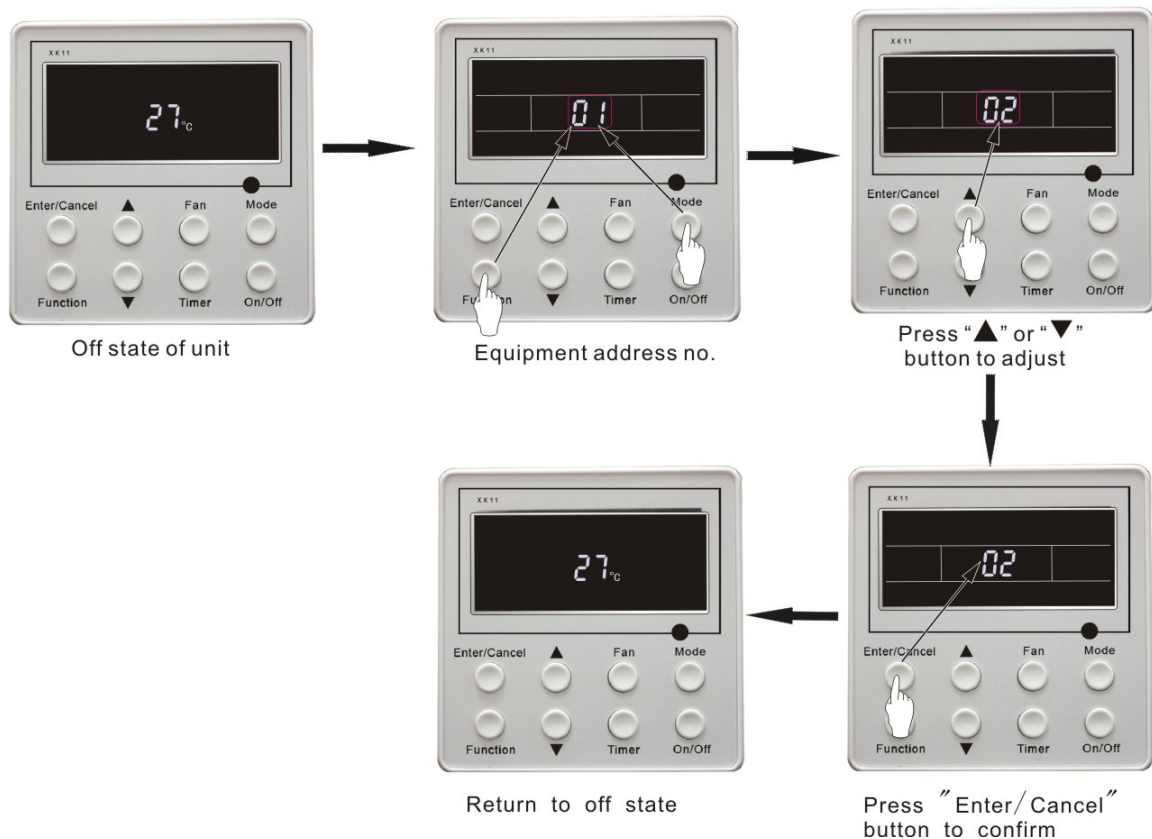


Fig.3.3.2: Enquiry and Setting of Wired Controller's Address

3.4 Instruction to Operation

3.4.1 On/Off

Press On/Off button to turn on the unit.
Repress this button to turn off the unit.

Note: The state shown in Fig.3.4.1 indicates off-state of the unit after energization.

The state shown in Fig.3.4.2 indicates on-state of the unit after energization.



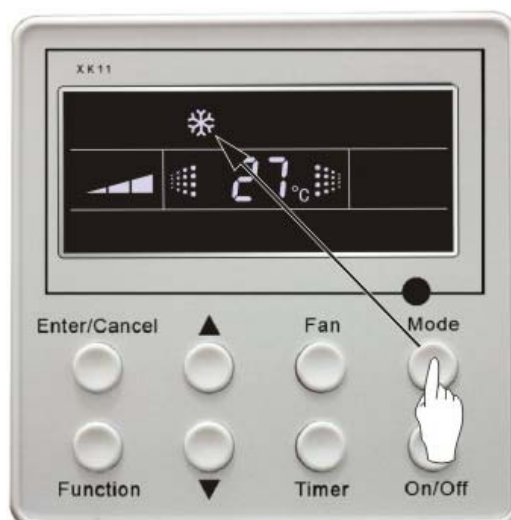
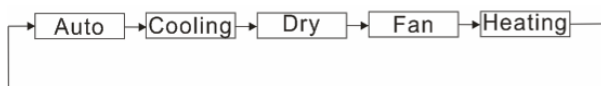
Fig.3.4.1 Off-state of the unit



Fig.3.4.2 On-state of the unit

3.4.2 Mode Setting

Under on-state of the unit, press Mode button to switch the operation modes as the following sequence:



3.4.3 Temperature Setting

Press ▲ or ▼ button to increase or decrease of setting temperature under on-state of the unit. If press either of them continuously, temperature will be increased or decreased by 1°C every 0.5s.

In Cooling, Dry, Fan and Heating mode, temperature setting range is 16°C~30°C.

In Auto mode, the setting temperature is un-adjustable.

As shown in Fig.3.4.3.

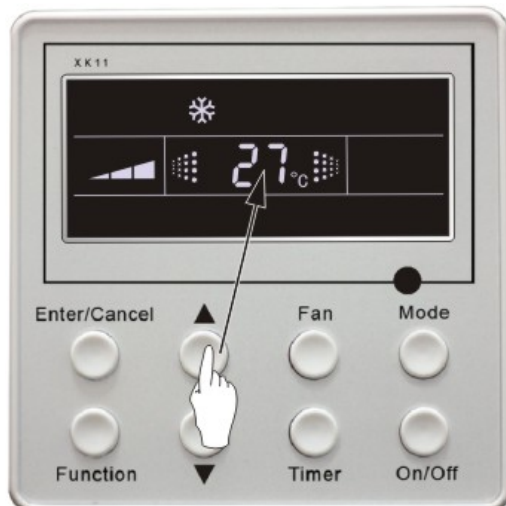


Fig.3.4.3

3.4.4 Fan Speed Setting

Press Fan button, fan speed of indoor unit will change as below:

As shown in Fig.3.4.4.

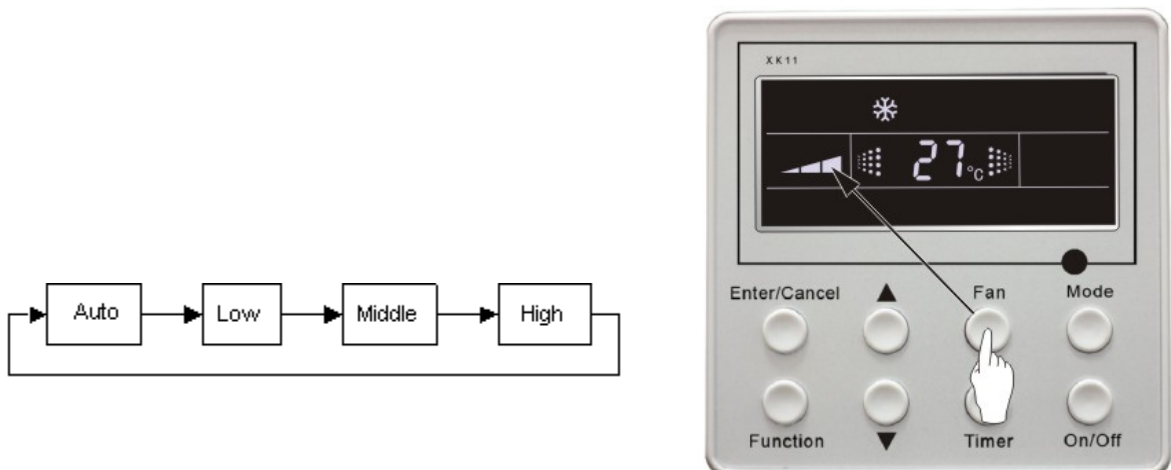


Fig.3.4.4

3.4.5 Swing Control Function *

Under on-state of unit, press Function button till the unit enters swing control function and then press "Enter/Cancel" button to turn on "swing" control function.

During swing function, press Function button till the unit enters swing control function and then press Enter/Cancel button to cancel swing control function.

Swing control function setting is shown in Fig 3.4.5

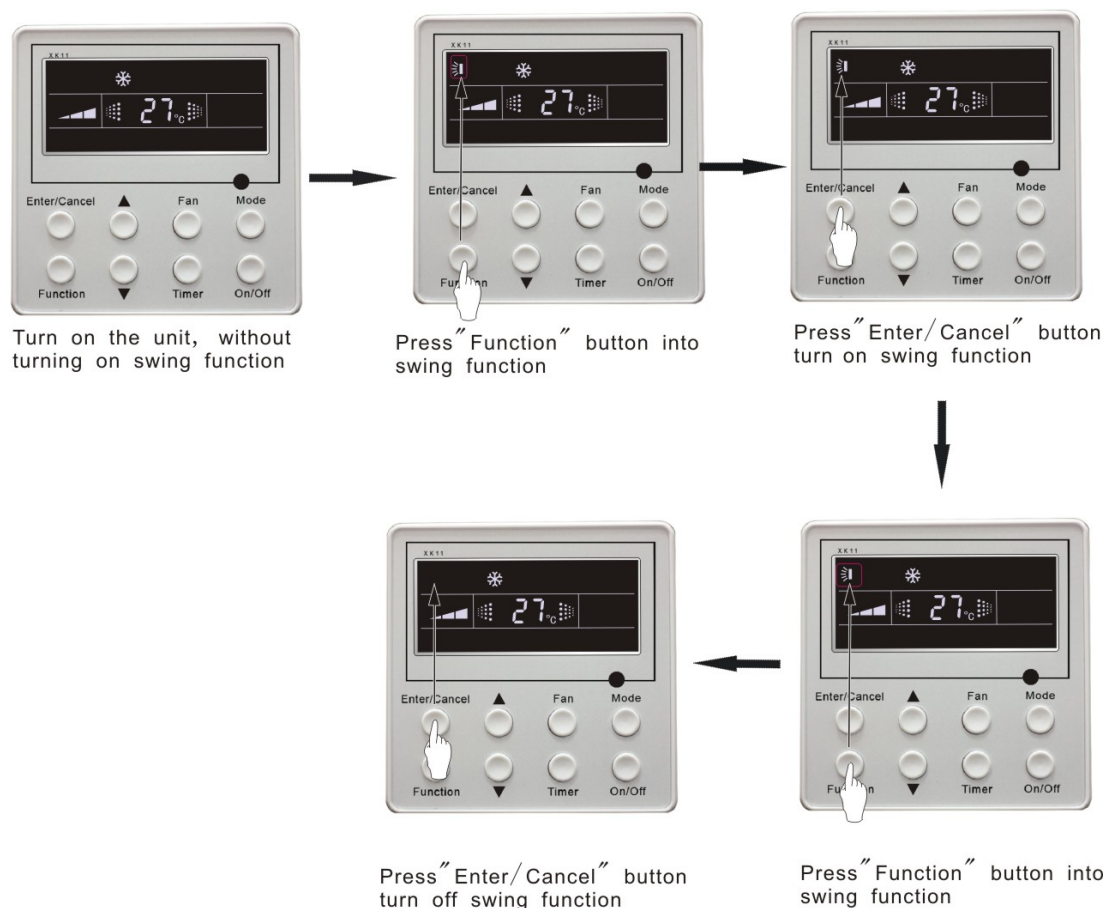


Fig.3.4.5

3.4.6 Timer Setting

Press Timer button to set timer off of the unit. Under off-state of the unit, press Timer button to set timer on of the unit in the same way.

Timer on setting: Under off-state of the unit without timer setting, if Timer button is pressed, LCD will display xx. Hour, ON blinking. In this case, press ▲ or ▼ button to adjust timer on and then press Timer to confirm. If Mode button is pressed before pressing Timer button to confirm, timer mode will be switched to timer off setting mode. In this case, LCD displays xx. Hour, OFF blinking. In this case, press ▲ or ▼ button to adjust timer off and then press Timer to confirm. When LCD displays xx. Hour On Off, xx. Hour means time of timer on, but time of timer off won't be displayed.

Timer off setting: Under on-state of the unit without timer setting, if Timer button is pressed, LCD will display xx. Hour, OFF blinking. In this case, press ▲ or ▼ button to adjust timer on and then press Timer to confirm. If Mode button is pressed before pressing Timer button to confirm, timer mode will be switched to timer on setting mode. In this case, LCD displays xx.

Hour, ON blinking. In this case, press ▲ or ▼ button to adjust timer on and then press Timer button to confirm. When LCD displays xx. Hour On Off, xx. Hour means time of timer off, but time of timer on won't be displayed.

Cancel timer: After setting of timer, if Timer button is pressed, LCD won't display xx. Hour so that timer setting is canceled.

Timer off setting under on-state of the unit is shown as Fig.3.4.6

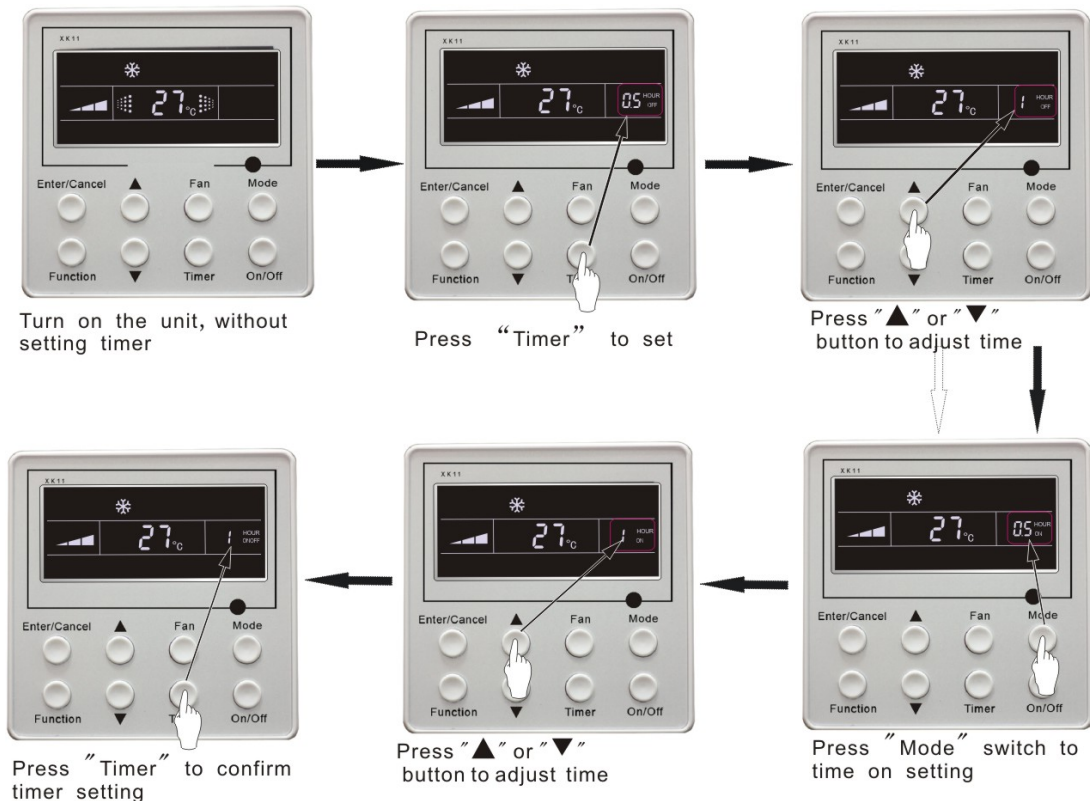


Fig.3.4.6 Timer setting under on-state of the unit

Timer range: 0.5-24hr. Every press of ▲ or ▼ button will make setting time increased or decreased by 0.5hr. If press either of them continuously, setting time will automatically increase/ decrease by 0.5hr every 0.5s.

Note:

1. If both timer on and timer off are set in unit on interface, the wired controller only display time of time off. If both of them are set in unit off-state, only time of timer on is displayed.
2. Timer on in unit on-state is timed from the time of unit off and timer off in unit off-state is timed from the time of unit on.

3.4.7 Air Exchange Setting *

Turn on air function: Under on-state of the unit, press Function button into this function setting (Air mark blinks). AIR 1 displayed at the ambient temperature-displayed location (888) is defaulted (the last type of AIR will be displayed after adjustment). Press ▲ or ▼ button to adjust air type. Press Enter/Cancel button to turn on/off air function. After turning on this function, the air mark shows.

There are 10 types of AIR, but only 1-2 types are for remote control. Refer to the following details:

- 1—The unit continuously runs for 60min, and fresh air valve runs for 6 min.
- 2—The unit continuously runs for 60min, and fresh air valve runs for 12 min.
- 3—The unit continuously runs for 60min, and fresh air valve runs for 18 min.
- 4—The unit continuously runs for 60min, and fresh air valve runs for 24 min.
- 5—The unit continuously runs for 60min, and fresh air valve runs for 30 min.
- 6—The unit continuously runs for 60min, and fresh air valve runs for 36 min.
- 7—The unit continuously runs for 60min, and fresh air valve runs for 42 min.
- 8—The unit continuously runs for 60min, and fresh air valve runs for 48 min.
- 9—The unit continuously runs for 60min, and fresh air valve runs for 54 min.
- 10—The unit continuously runs for 60min, and fresh air valve always runs.

Turn off air function: During Air function, press Function button into Air function. In this case, air mark is blinking, and then press Enter/Cancel button to turn off this function. Air mark will subsequently disappear.

Air setting is shown as in fig.3.4.7:

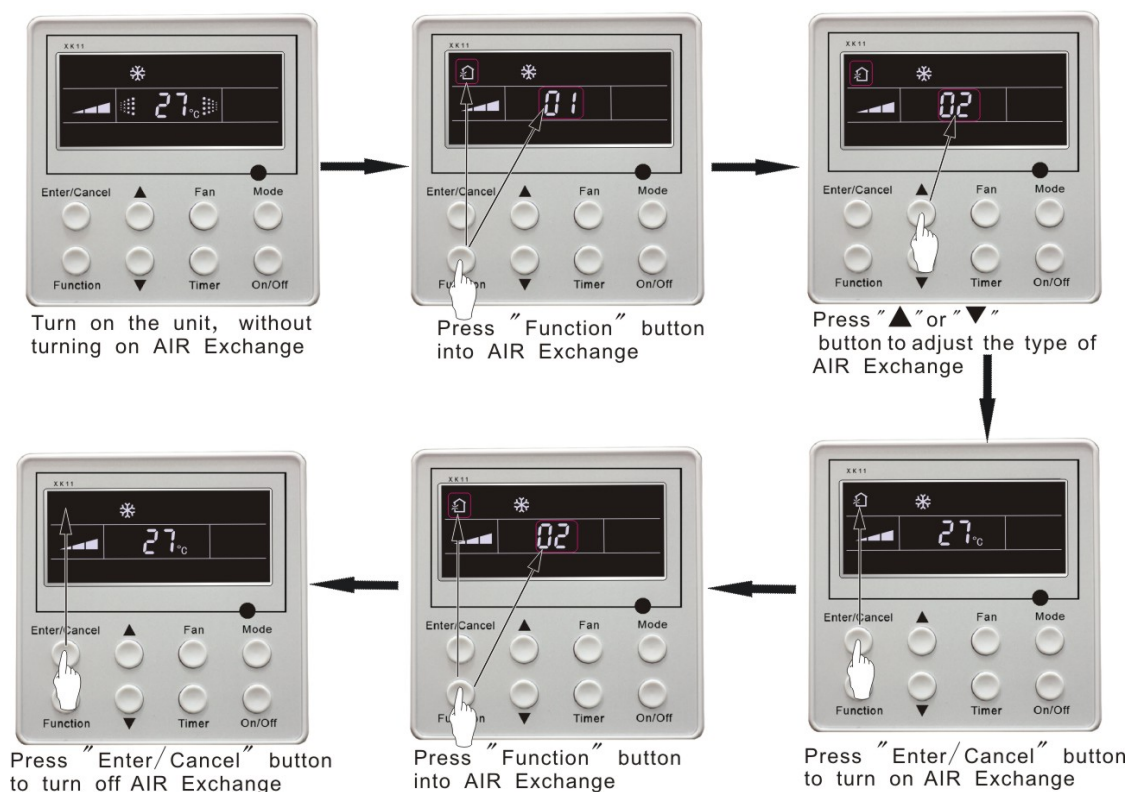


Fig.3.4.7 Air exchange device

Note: In air exchange mode, press Function button or there is not any operation within 5s after the last button operation, the system will be quit from air exchange setting and current energy-saving data won't be memorized.

3.4.8 Sleep Setting

Sleep on: Press Function button under on-state of the unit into sleep function and then press Enter/Cancel button to turn on sleeping function.

Sleep off: During sleep on-state, press Function button into sleep function and then press Enter/Cancel button to turn off this function.

Sleep setting is shown as Fig.3.4.8:

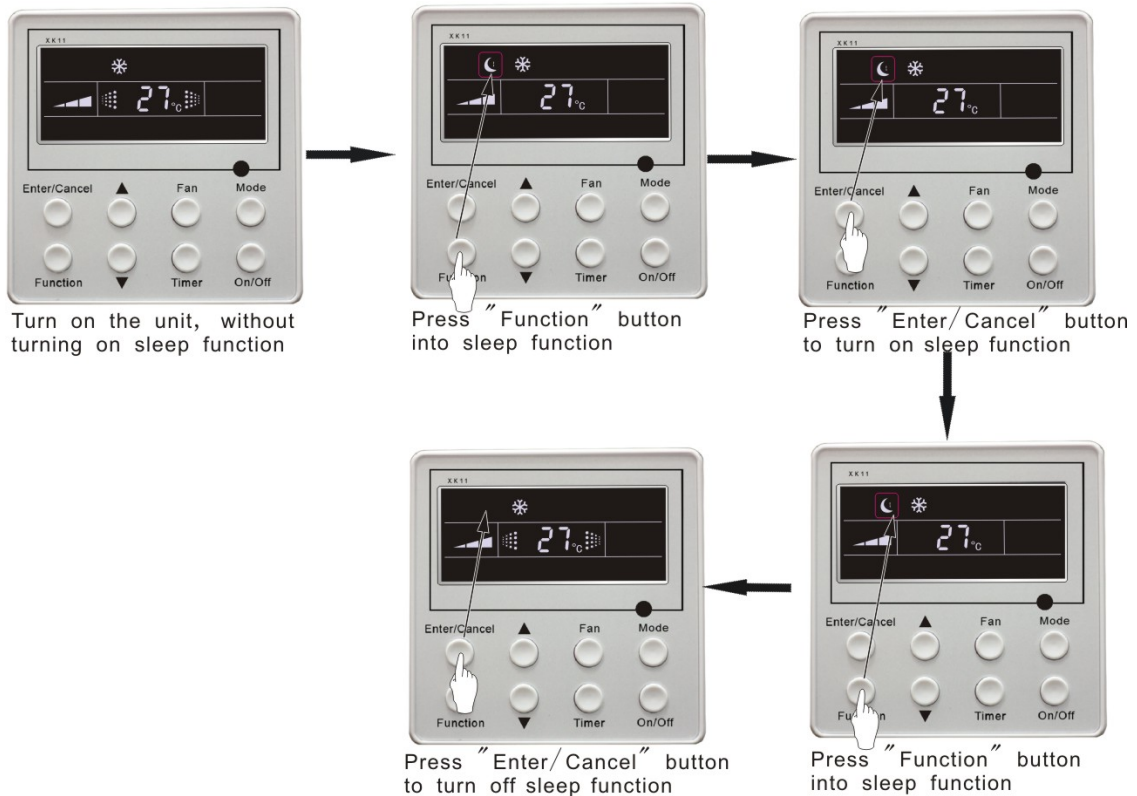


Fig.3.4.8 Sleep setting

Sleep setting is clear after power failure and then power recovery. There is not sleep function in fan and auto mode.

Note: In cooling and dry mode, if the unit with sleep function has run for 1 hour, the preset temperature will be increased by 1°C and 1°C in another 1 hour. After that, the unit will run at this temperature. In heating mode, if the unit with sleep function has run for 1 hour, the preset temperature will be decreased by 1°C and 1°C in another 1 hour. After that, the unit will run at this temperature.

3.4.9 Turbo Function Setting

Turbo function: The unit at high fan speed can realize quick cooling or heating so that room temperature can quickly approach setting temperature.

In cooling or heating mode, press Function button till the unit enters turbo function and then press Enter/Cancel button to turn on turbo function.

During turbo function, press Function button till the unit enters turbo function and then press Enter/Cancel button to cancel turbo function.

Turbo function setting is shown in Fig.3.4.9:

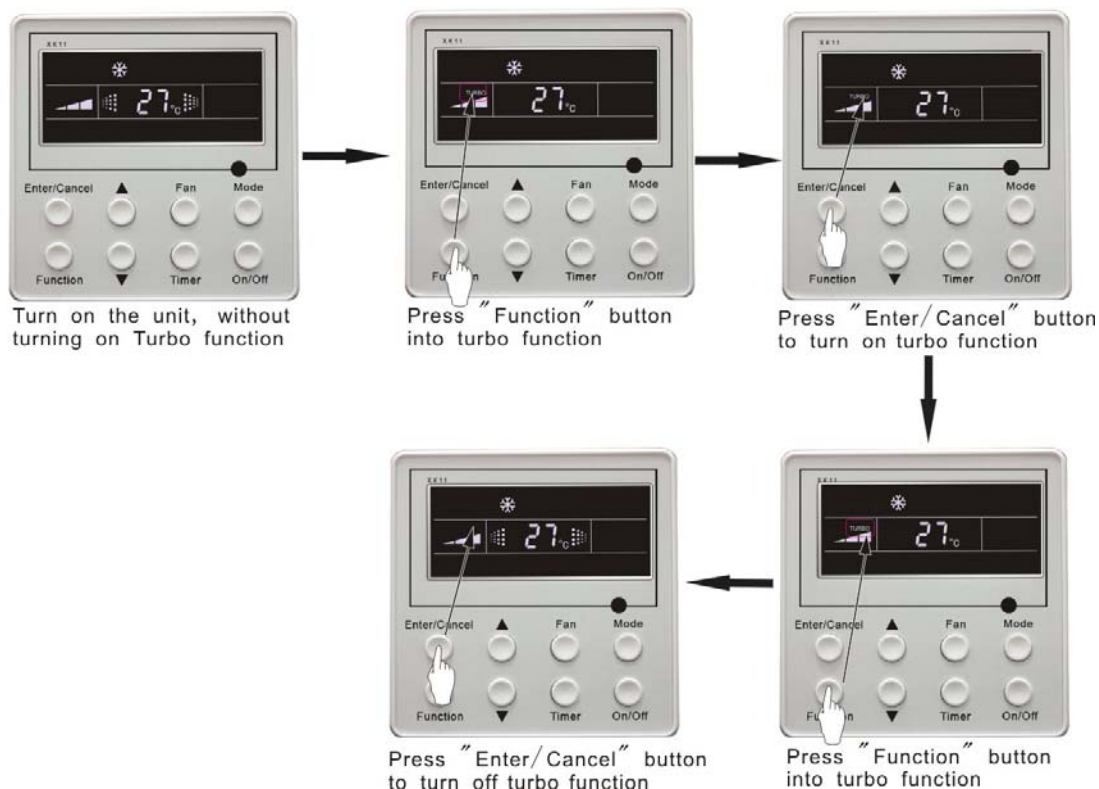


Fig.3.4.9 Turbo Function Setting

Note:

1. Turbo function will be turned off after power failure and then recovery. In dry, fan and auto mode, turbo function can not be set and turbo mark won't be displayed.
2. Turbo function will be automatically canceled after setting of quiet function.

3.4.10 Save Function Setting

Energy Saving Function: Energy saving result that the air conditioner runs in smaller temperature range is realized by setting lower limited value of setting temperature in cooling or dry mode and upper limited value in heating mode.

Energy Saving Setting for Cooling

Under on-state and in cooling or dry mode of the unit, press Function button into energy saving function, SAVE blinking. Press ▲ or ▼ button to adjust lower limited value of setting temperature in cooling mode. After that press Enter/Cancel button to turn on energy saving function for cooling.

Energy Saving Setting for Heating

Under on-state and in heating mode of the unit, press Function button into energy saving function, SAVE blinking. Press Mode button into energy saving function for heating and then press ▲ or ▼ button to adjust upper limited value of setting

temperature in heating mode. After that, press Enter/Cancel button to turn on energy saving function for heating.

After energy saving function is turned on, press Function button into energy saving function and press Enter/Cancel button to cancel this function.

The energy saving setting is shown in the fig.3.4.10.

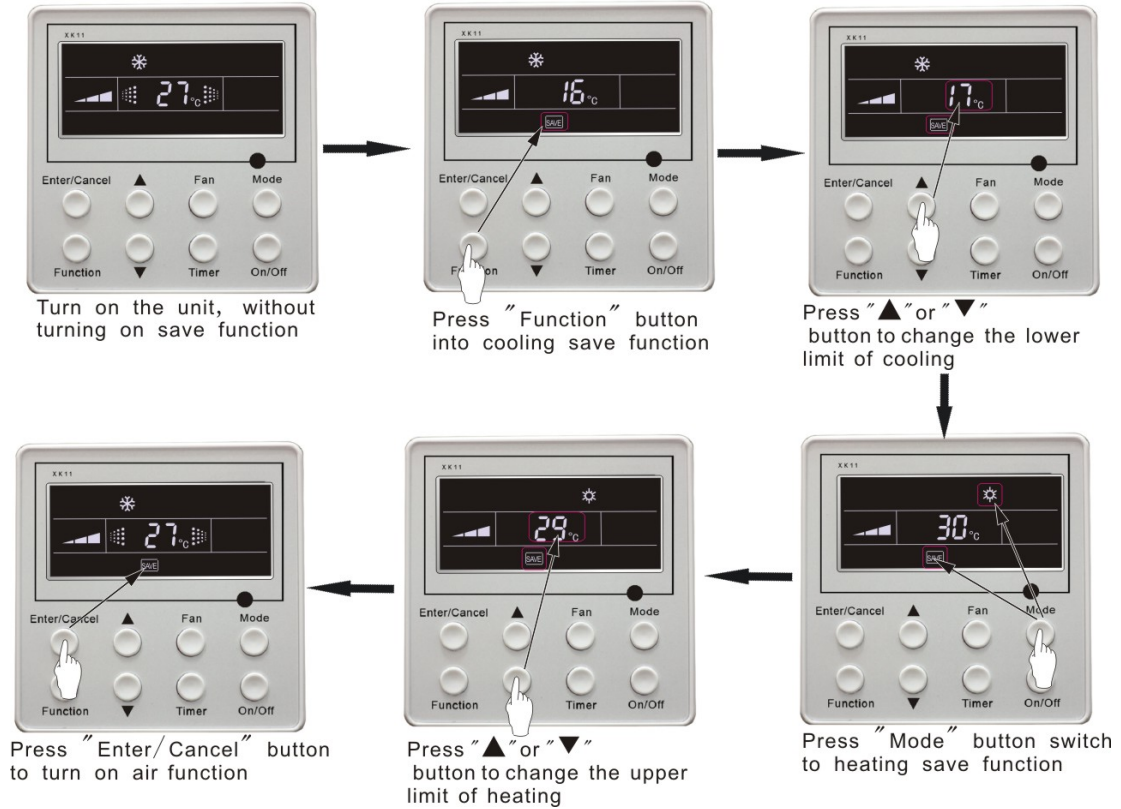


Fig.3.4.10 Energy Saving Setting

Note:

1. In Auto running mode with save function on, the unit will be forcibly changed to corresponding mode. After setting of save, sleep function will be canceled.
2. In save mode, if Function button is pressed or there is not any operation within 5s after the last button operation, the system will be quit from save function setting and current data won't be memorized.
3. After power failure and then recovery, save function setting will be memorized.
4. The lower limited value in cooling mode is 16°C and the upper limited value in heating mode is 30°C.
5. After save setting, if the setting temperature is out of the range in the mode, the limited value will prevail.

3.4.11 E-heater setting *

E-heater: In heating mode, E-heater is allowed to be turned on for improvement of efficiency.

If heating mode is turned on by button operation, auxiliary electric heating function will be automatically turned on.

Press Function button in heating mode into auxiliary electric heating function, E-HEATER blinking, and press Enter/Cancel button to turn on this function. In this case, E-HEATER will be displayed, which means E-heater is allowed to be turned on.

If auxiliary electric heating function is on, press Function button to confirm or press Enter/Cancel button to cancel. In this case, E-HEATER won't be displayed, which means E-heater is prohibited to be turned on.

The setting of this function is shown as Fig.3.4.11 below:

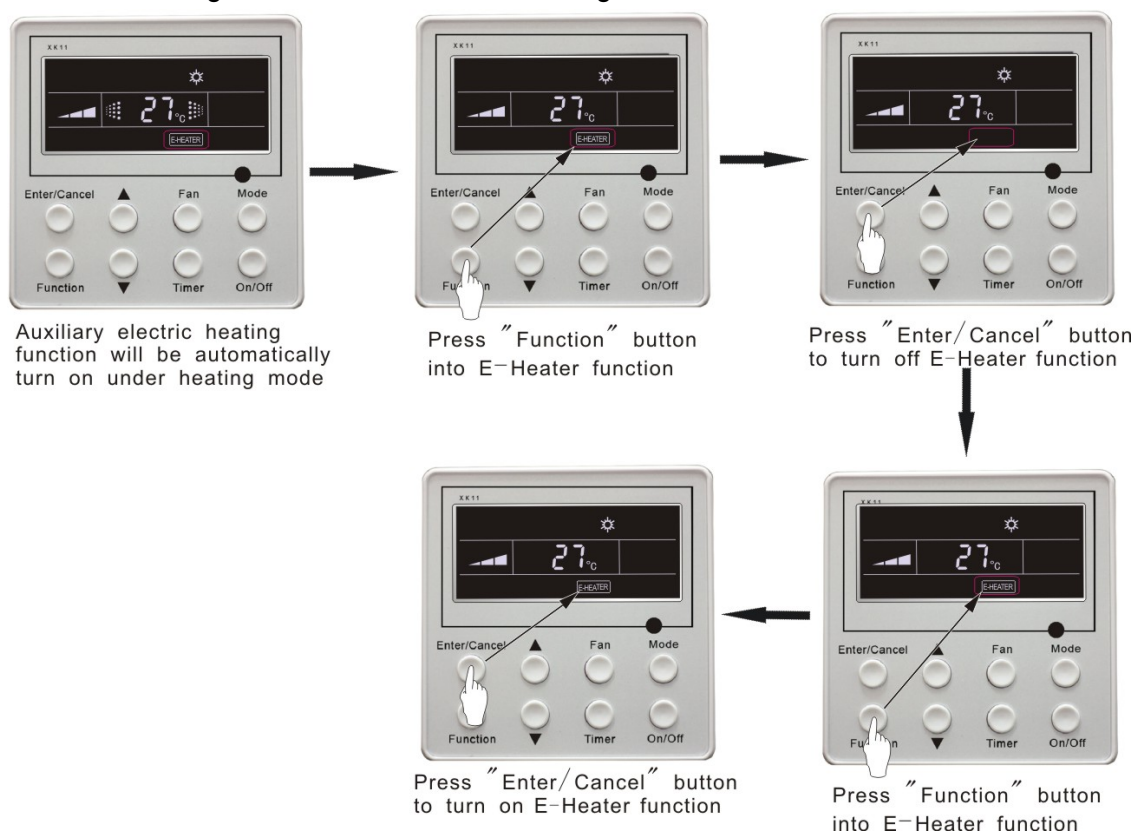


Fig.3.4.11 Auxiliary Electric Heating Function Setting

Note: E-heater can not be set in cooling, dry and fan mode, E-heater mark won't be displayed. The setting is shown in Fig.3.4.11.

There is not E-heater for A2 and cassette unit.

3.4.12 Blow Function Setting

Blow function: After the unit is turned off, water in evaporator of indoor unit will be automatically evaporated to avoid mildew.

In cooling and dry mode, press Function button till the unit enters blow function, BLOW blinking, and then press Enter/Cancel button to turn on this function.

In blow mode, press Function button till the unit enters BLOW function and then press Enter/Cancel button to cancel this function.

BLOW function setting is shown in Fig.3.4.12

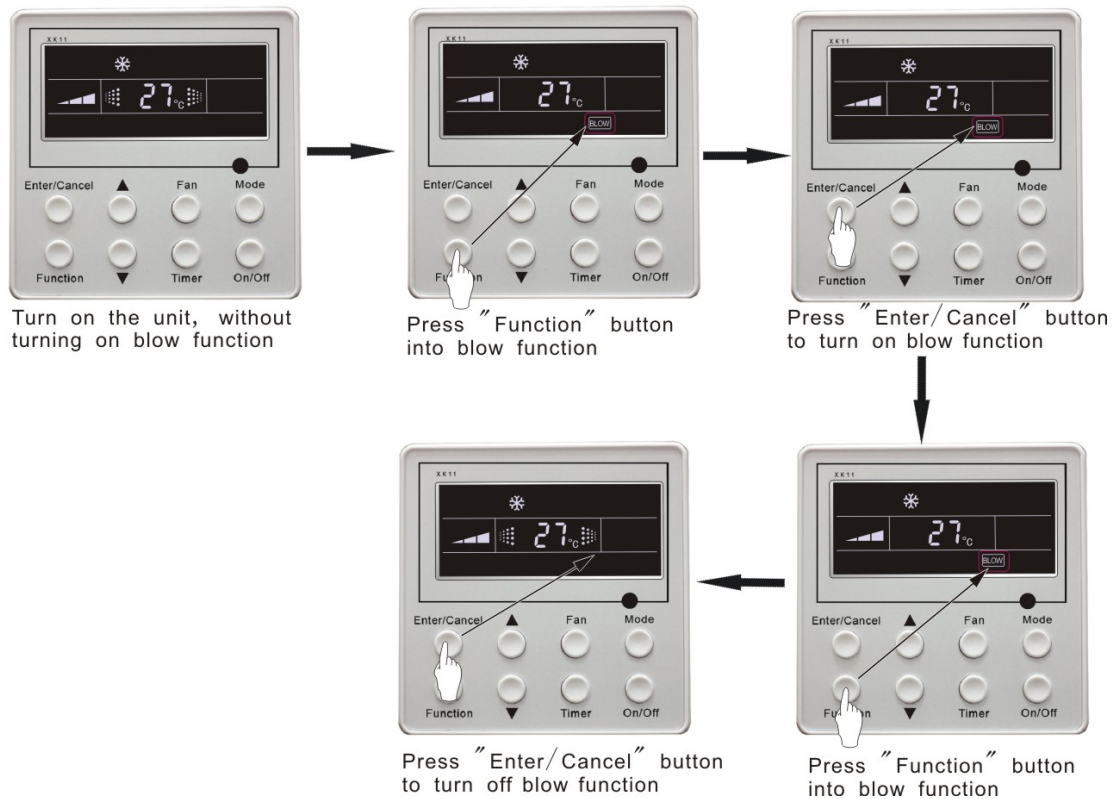


Fig.3.4.12 Blow function setting

Note:

1. After setting BLOW function, turn off the unit by pressing On/Off button on remote controller, indoor fan will run at low fan speed for 10 min. (BLOW shows). Meanwhile, if BLOW function is canceled indoor fan will be turned off directly.
2. There is not BLOW function in fan or heating mode.

3.4.13 Quiet Function Setting

Quiet function consists of two kinds: quiet and auto quiet.

Press Function button till the unit enters quiet function setting state, Quiet or Auto Quiet mark blinks. In this case, press ▲ or ▼ button to switch between Quiet and Auto Quiet and then press Enter/Cancel button to turn on this function.

In quiet mode, press Function button till the unit enters quiet function. In this case, Quiet or Auto Quiet icon blinks and then press Enter/Cancel button to cancel this function.

Quiet function setting is shown in Fig.3.4.13

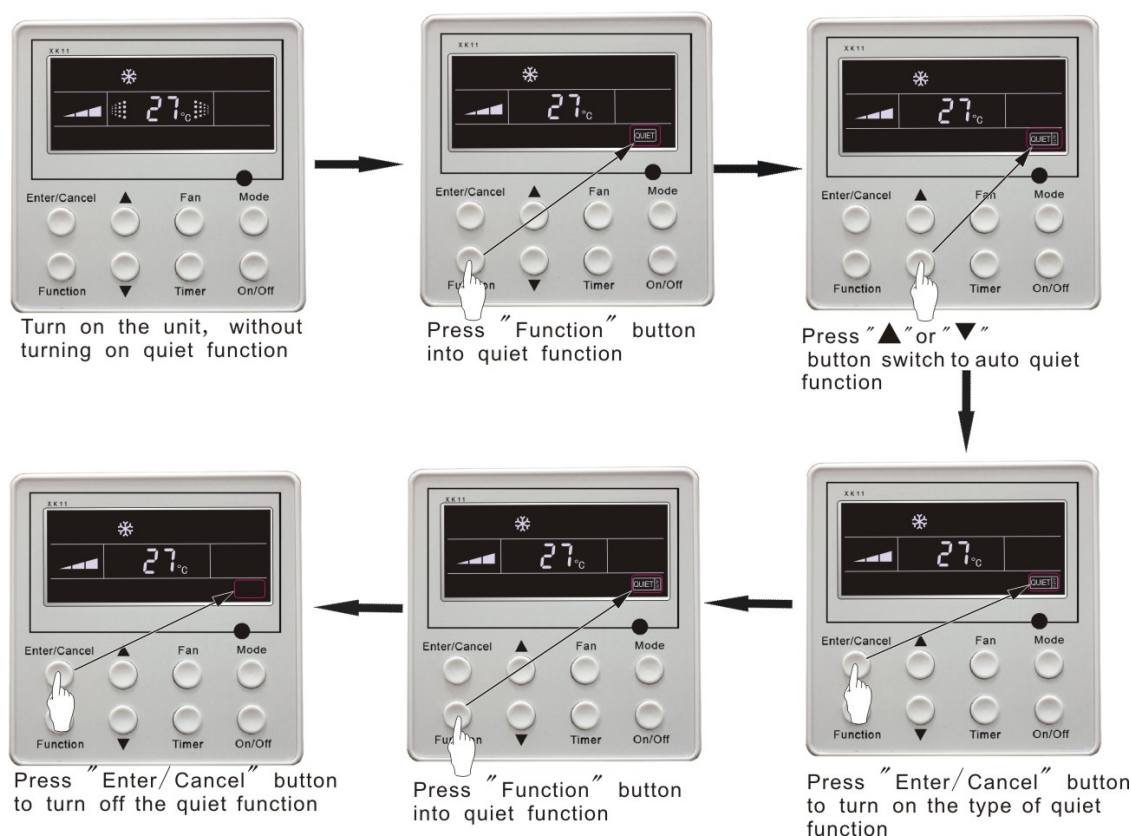


Fig.3.4.13 Quiet function setting

Note:

1. During quiet function, fan speed is un-adjustable.
2. When turning on auto quiet function, the unit will enter quiet running state according to temperature difference between room temperature and setting temperature. In this case, fan speed is adjustable. If temperature difference between room temperature and setting temperature $\geq 4^{\circ}\text{C}$, fan will keep its current speed; if $2^{\circ}\text{C} \leq$ temperature difference $\leq 3^{\circ}\text{C}$; fan speed will be reduce one grade, but if it is at min. grade, it is un-adjustable.; if temperature difference $\leq 1^{\circ}\text{C}$, fan speed will be at min. grade
3. In auto quiet mode, fan speed can not be raised but reduced. If high fan speed is manually adjusted, auto quiet mode will quit.
4. There is not auto quiet function in fan or dry mode. Quiet off is default after power failure and then power recovery.
5. If quite function is set, turbo function will be canceled.

3.4.14 Field Functions

Under off-state of the unit, press Function and Timer buttons continuously for 5s into debugging menu. Press Mode button to adjust the setting items and ▲ or ▼ button to set the actual value.

3.4.14.1 Ambient Temperature Thermistor Setting

In field setting mode, press Mode button to adjust the temperature displayed location displaying 00, and press ▲ or ▼ button to adjust setting state at timer displayed location. There are 3 types for selection:

- ① Indoor ambient temperature is that at return air inlet (01 is displayed at timer displayed location)
- ② Indoor ambient temperature is that at the place of screen (02 is displayed at timer displayed location)
- ③ Return air inlet temperature thermistor shall be selected for cooling, dry and fan modes and wired controller temperature thermistor (03 is displayed at timer displayed location) shall be selected for heating and auto modes.

3.4.14.2 Three Grades of Speed for Indoor Fan

In field setting mode, press Mode button to adjust the temperature displayed location displaying 01 and press ▲ or ▼ button to adjust setting state at timer displayed location. There are 2 types for selection:

- ① 3 low grades (LCD displays 01)
- ② 3 high grades (LCD displays 02)

Three low grades indicate high, medium and low grades and 3 high grades indicate super-high, high and medium grades.

Press Enter/Cancel button to save the setting and quit after setting. If there is not any operation within 20s after the system responds the latest button operation in this interface, the system will quit this menu and display normal off-state; meanwhile, current setting won't be saved.

3.4.15 Other Functions

3.4.15.1 Lock Function

Upon startup of the unit without malfunction or under off-state of the unit, press ▲ and ▼ buttons at the same time for 5s till the wired controller enters lock state. In this case, LCD displays . After that, repress these two buttons at the same time for 5s to quit lock state.

Under lock state, any other buttons won't give any response to the press.

3.4.15.2 Memory Function

Memory switchover: Under off-state of the unit, press Mode and ▲ buttons at the same time for 5s to switch memory modes. During setting memory mode, Memory will be displayed. If this function is not set, the unit will be under off-state after power failure and then power recovery.

Memory recovery: If memory mode has been set for wired controller, the wired controller after power failure will resume its original running state upon power recovery.

Note: It will take about 5s to save all the information. Please don't cut down the power after content changed in 5 second, or It may be fail to save the content.

3.4.15.3 Enquiry of Outdoor Ambient Temperature

Under on or off-state of the unit, press Enter/Cancel button for 5s, outdoor ambient temperature will be displayed at temperature displaying location after a sound of click. Pressing any button, this enquiry state will quit. If there is not any operation for 20s, it will automatically quit.

Note:

1. This function will be shielded after energization of 12hr for some models of the units without outdoor ambient sensors. Please refer to Instruction for details.
2. If malfunction of outdoor ambient sensor occurs, this function will be shielded in 12hr.

3.4.15.4 Enquiry of Historical Errors

Continuously press Function and ▼ buttons without lock for 5s into enquiry state. In this state, press Enter/Cancel button to quit, or it will automatically quit after there is not any operation of button in 30min. In enquiry state, press Mode button to adjust temperature displayed location displaying 00-04 and press ▲ or ▼ button to make timer displayed location displaying error code. If 2E1 is displayed in timer displayed location, it means high pressure protection of the system 2.

3.4.15.5 Selection of Centigrade and Fahrenheit

Under off-state of the unit, press Mode and ▼ at the same time for 5s, the displayer panel will switch between Centigrade and Fahrenheit.

3.5 Error Display

If there is malfunction during running of the system, LCD will display error code at temperature—displayed location. Once there is more than one malfunction,, error codes will be displayed circularly. If there are multiple circuit systems, the system number of failed system will be displayed before the colon (not for single system).

If malfunction occurs, turn off the unit and contact nearest dealer for help.

As shown in Fig.3.5.1, it means high pressure protection of system 2 under unit on.

Note:

Only Big Wind Pipe series have multiple units.

Multi-system is only for air cooled packaged unit Malfunction code list:



Fig.3.5.1

Malfunction code list

Malfunction code	Description
E1	Actuation of high pressure switch
E2	Indoor anti-freezing protection
E3	Actuation of low pressure switch
E4	Abnormal discharge temperature
E5	Compressor overheat
E6	Malfunction of communication
E9	Malfunction of drain water level
F0	Malfunction of Indoor unit room temperature thermistor at air intake
F1	Malfunction of evaporator temperature thermistor
F2	Malfunction of condenser temperature thermistor
F3	Malfunction of Outdoor ambient temperature thermistor
F4	Malfunction of discharge air temperature thermistor
F5	Malfunction of ambient thermister on screen(or LED board)

3.6 Setting of Indoor Room Sensor and Checking of Outdoor Ambient Temperature

3.6.1 Setting of Double Indoor Room Sensors

This series of ducted air-conditioning unit has two indoor room sensors. One is located at the air intake of the indoor unit and the other one is located inside the wired controller.

User can select one from the two indoor room sensors on the basis of the engineering requirement.

(Refer to the section of wire controller instructions for detailed operation.)

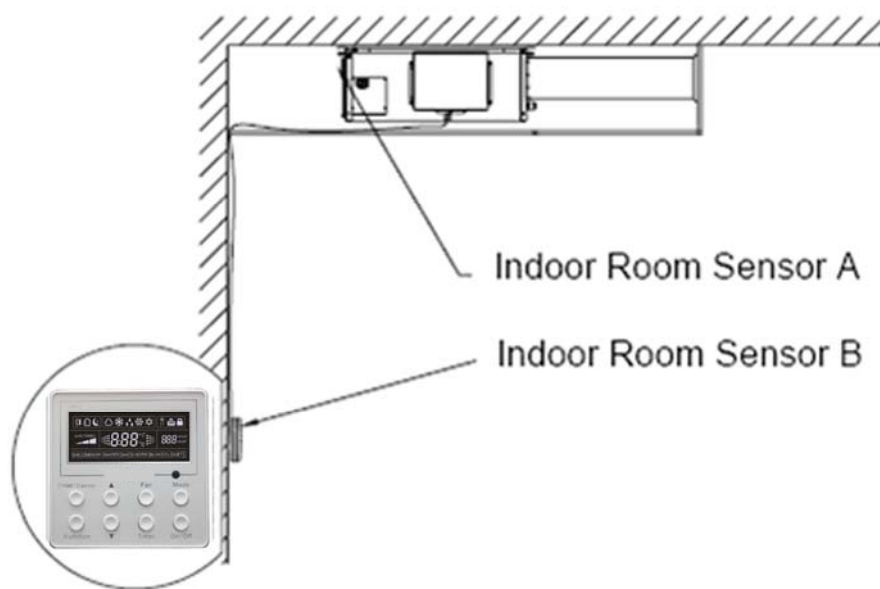


Fig.3.6.1

3.6.2 Checking of Outdoor Ambient Temperature

The outdoor ambient temperature can be checked on the wire controller for the convenience of users without going out. (Refer to the section of wire controller instructions for detailed operation.)

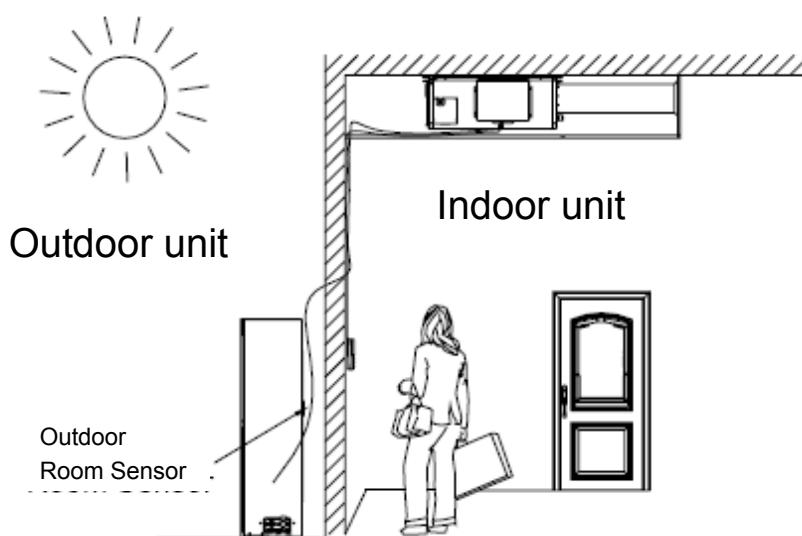


Fig.3.6.2

3.6.3 Fresh Air Control *

11-levels control can be realized for the amount of fresh air taken in. The function not only facilitates the health of users, but also controls the electricity consumption loss due to take fresh air in. This kind of control can be carried out through the wired controller. The function can set at any time, goes into effect at any time, and features very simple operation. (Refer to the section of wired controller instructions for detailed operation.)

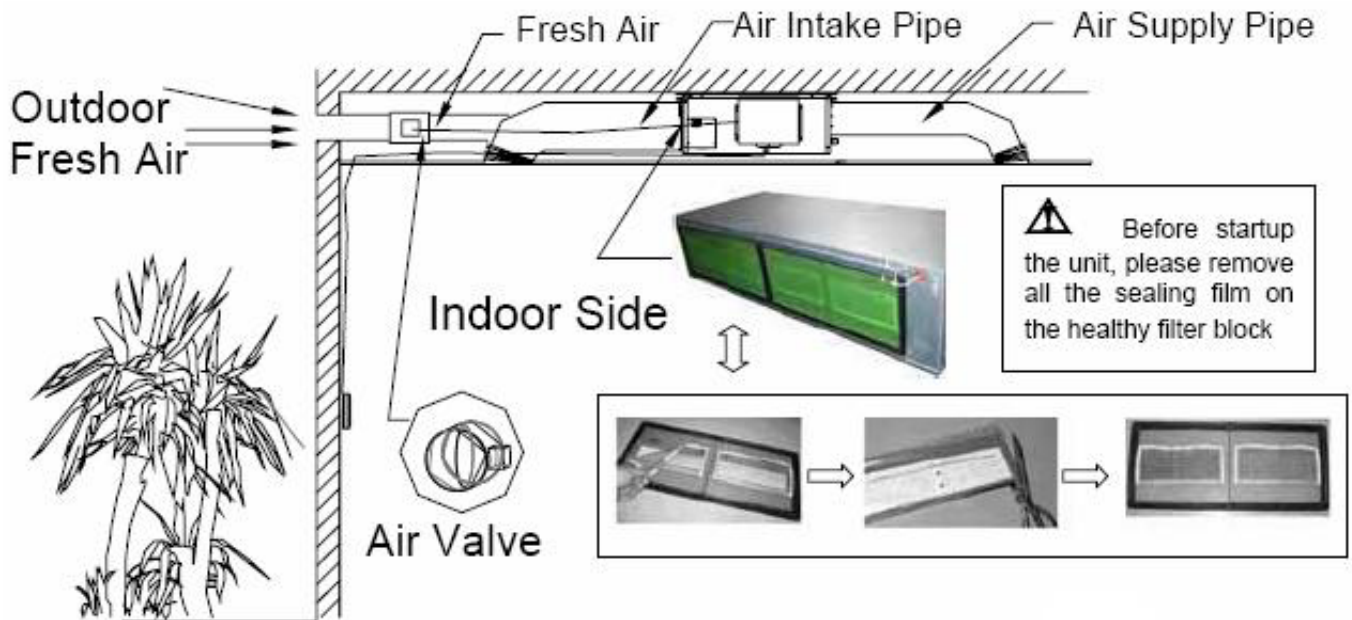


Fig.3.6.3

3.6.4 Position and Method of Installing Wired Remote Controller

One end of the control wire of the wired remote controller is connected to main board in the electric box of indoor unit, it should be tightened by wire clamp, the other end should be connected to the wired controller. The special control wire be used between the indoor unit and wired remote controller, which the length is 8 meters.

The material be adopted for the control wire should be metallic substance. The wired controller could not be disassembled and the control wire be used for the wired controller should not be changed by users optionally. The installation and maintenance should be carried out by the installer.

Firstly select an installation position. According to the size of the control wire for the wired remote controller, leave a recess or a embedded wire hole to bury the communication line.

If the control wire between the wired remote controller and the indoor unit is surface-mounted, use 1# metallic pipe and make matching recess in the wall (refer to Figure 3.6.4); If concealed installation is adopted, 1# metallic pipe can be used (Refer to Figure 3.6.5).

No matter if surface mounting or concealed mounting is selected, it is required to drill 2 holes (in the same level) which distance shall be the same as the distance (60mm) of installation holes in the bottom plate of the wired controller. Then insert a wood plug into each hole. Fix the bottom plate of the wire controller to the wall by using the two holes. Plug the control wire onto the control panel. Lastly install the panel of the wire controller (Refer to Figure 3.3.1).

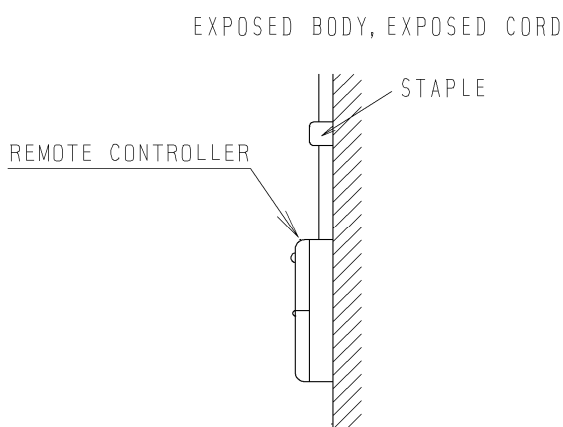


Fig.3.6.4

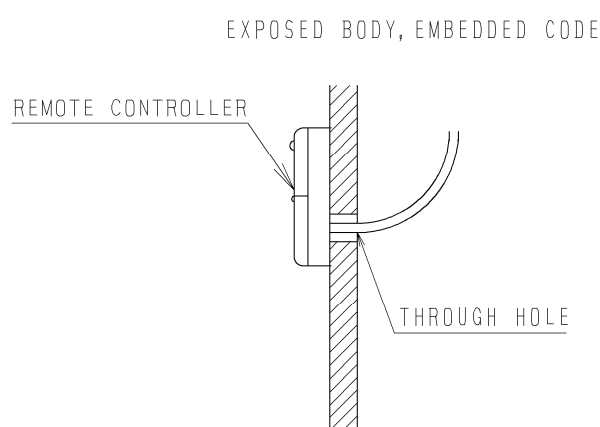


Fig.3.6.5



Caution:

During the installation of the bottom plate of the wired controller, pay attention to the direction of the bottom plate. The plate's side with two notches must be at the lower position, and otherwise the panel of the wired controller cannot be correctly installed.



Caution:

1. The communication distance between the main board and the wired controller can be as far as 20m (The standard distance is 8m).
2. The wired controller shall not be installed in a place where there is water drop or large amount of water vapor.

Part 3

INSTALLATION

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1. INDOOR UNIT INSTALLATION

1.1 Installation of Duct Type

1.1.1 Before Installation

- ◆ After receiving the unit, check if there is any damage during transportation. If there is damage on the surface or inside, inform the transportation company or equipment supplier in written form immediately.
- ◆ After receiving the unit, check the unit and its accessories according to the packing list. Confirm that the model is the same and the unit is intact. At the same time, check the specification and quantity of the accessories.
- ◆ Select the correct route and method of transportation to avoid damage of the unit and any accident incurred. To avoid damage to the unit the unit and security consideration, it is advised that move the unit with its package. Even if that is forbidden in special situation, don't remove the carton to avoid looseness and drop.
- ◆ Check if the installation base is solid. When the unit is installed in the metal part of the building, must make sure electric insulation and make sure that it conforms with related standards.
- ◆ Make sure that the installation site is far away from where the flammable or explosive substances are stored to avoid explosion or fire may occurred by leakage of such substances.

1.1.2 Installation Site

- ◆ Ensure the top hanging piece has strong strength to withstand the weight of the unit.
- ◆ The drainage pipe has convenient flow of water.
- ◆ There is no obstacle blocking the air intake and exhaust outlet, so as to ensure enough air circulation.
- ◆ The installation spaces required by the drawing must be ensured, so as to provide enough space for the service and maintenance.
- ◆ The installation site must be far away from heat source, leakage of inflammable gas or smoke.
- ◆ The indoor unit is of ceiling mount (indoor unit is hidden inside the ceiling).
- ◆ The indoor and outdoor units, the power cable and the connecting electrical lines must be kept at least 1 meter away from any TV set or radio. This is to avoid image interference or noise of the TV set or radio. (Even if the distance is 1 meter, noise can also exist if there is strong electric wave.)

1.1.3 Caution for Installation

- 1) The unit is installed inside room and installed as ceiling suspension type. Make sure that the hanger on the ceiling can withstand the weight of the indoor unit.
- 2) Rubber vibration pad (thickness $\geq 20\text{mm}$) and rubber junction shall be applied to avoid noise and vibration.

- 3) Insert a M10 expansion bolt into the hole. Drive a nail into the bolt. Refer to the profile dimensions drawing of the indoor unit for the distance between the holes. Refer to Figure 1 for the installation of the expansion bolt, as shown in Figure 1-1-1.

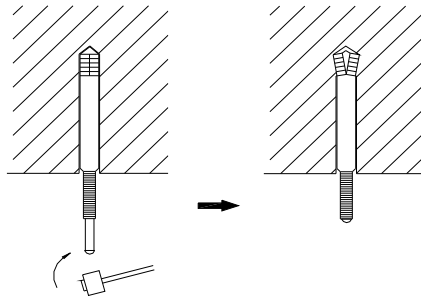


Figure 1-1-1

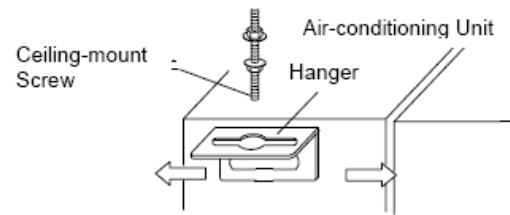


Figure 1-1-2

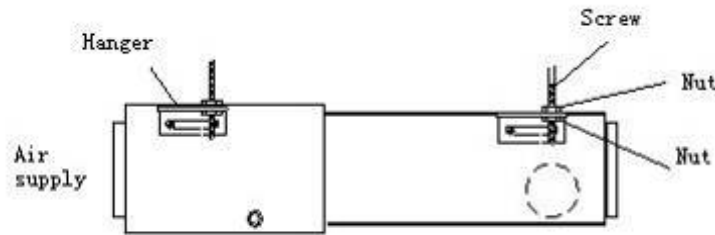


Figure 1-1-3

- 4) Install the hanger onto the indoor unit as shown in Fig.1-1-2.
5) Install the indoor unit at the ceiling as shown in Fig 1-1-5.

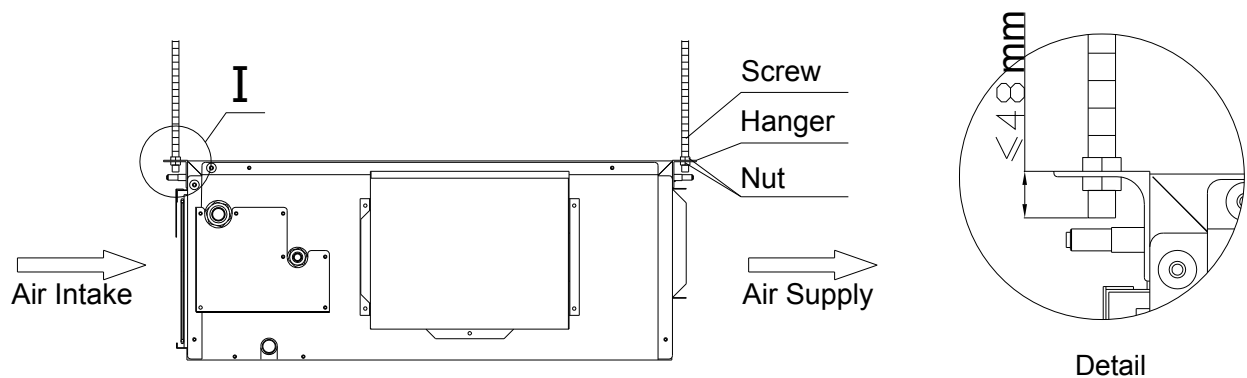


Figure 1-1-5

- 6) Precautions for unfavorable installation:
- ◆ The preparation of all pipes (connecting pipes and drainage pipes) and cables (connecting lines of wired controller, indoor unit and outdoor unit) must be ready before the installation, so as to install easily.
 - ◆ Drill an opening on the ceiling. Maybe it is required to support the ceiling to ensure the evenness of it and avoid the vibration of it. Consult with the user or a construction company for details.
 - ◆ In case the strength of ceiling is not enough, use angle iron sections to set up a beam support. Place the unit at the beam and fix it.

7) Horizontal Survey of the Indoor Unit

After installation of the indoor unit is finished, horizontal survey of the complete unit must be executed to confirm the horizontal placement of the unit, which is shown as below:

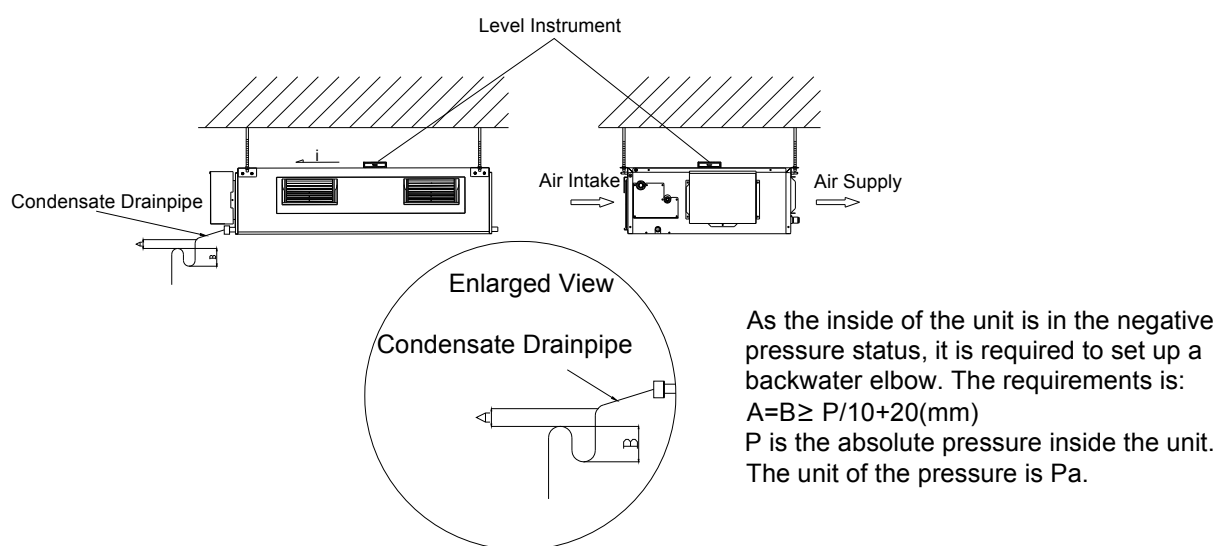


Figure 1-1-6

1.1.4 Dimension Data

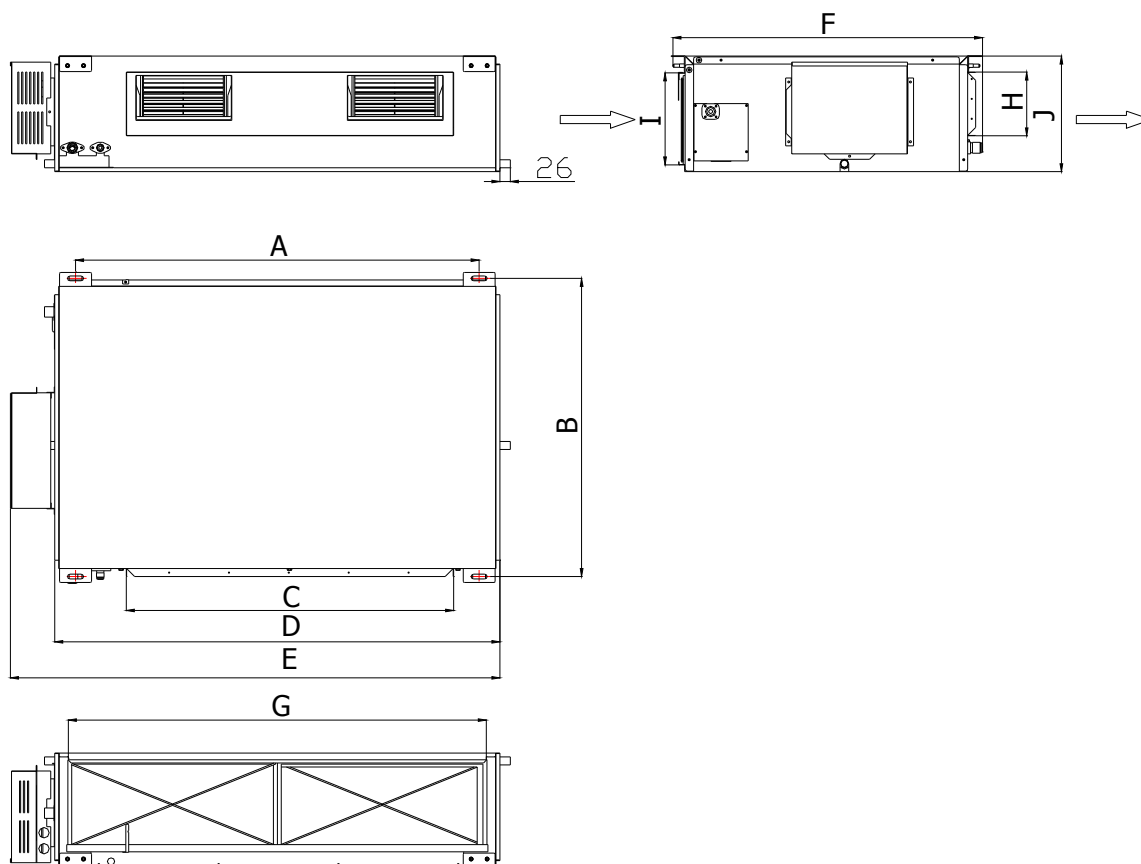


Figure 1-1-7

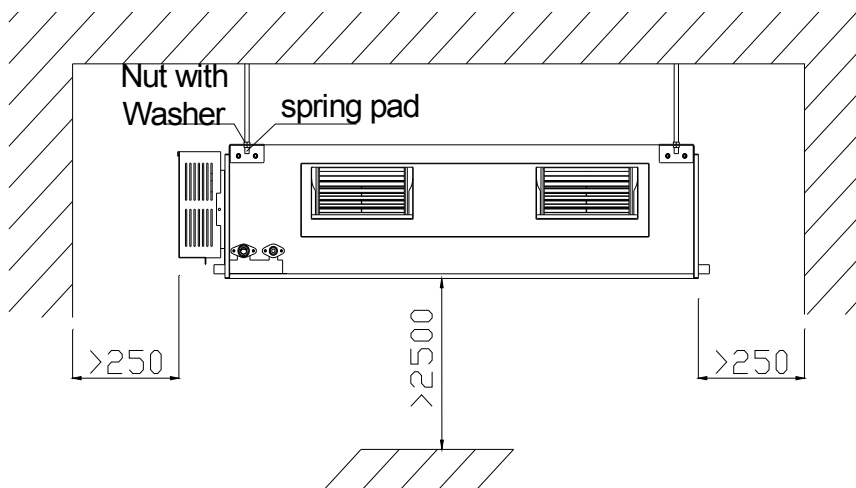
Unit : mm

Model	A	B	C	D	E	F	G	H	I	J
FD(Y)M24PEV1K	1101	515	820	1159	1270	530	1002	160	235	268
FD(Y)M30PEV1K										
FD(Y)M36PEV1K	1011	748	820	1115	1226	775	979	160	231	290
FD(Y)M42PEV1K										
FD(Y)M48PEV1K										

Accessories Sheet

Name	Qty	Description
Operation and Installation Instruction	1	
Heat Insulator of Gas Pipe Joint	1	for gas joint of the indoor unit
Heat Insulator of Liquid Pipe Joint	1	for liquid joint of the indoor unit
Heat Insulator of drain Pipe	2	for wrapping condensate pipe and rubber plug
Nut with Washer M8	8	for fixing hook hitch
Nut with Washer M10	4	4 sets; for installation of the indoor unit
Nut and Spring Pad	4	
Hanger	4	for installation of the indoor unit
Bundle of Threads	4 or 8pcs	4pcs for 2HP unit and 8pcs for others
Wired Controller	1	
Remote Controller	1	
Battery	2	
Accordion Pipe	0.2pcs or 4pcs	0 for 2HP unit, 2pcs for 2.5-3HP unit and 4pcs for 4-5HP unit
Power Cord	1-2pcs	2 pcs for 4-5HP unit and 1 pcs for others
Connecting Wire	2-3pcs	3pcs for 4-5HP unit and 2pcs for others

1.1.5 Installation Clearance Data



Indoor Unit Figure 1-1-8

1.1.6 Drain Piping Work

1) Installation of Drainage Pipeline

- ◆ A drainage outlet is located at both the left and right sides of the indoor unit. After selecting one drainage outlet, the other outlet shall be blocked by rubber plug. Bundle the blocked outlet with string to avoid leakage, and also use thermal insulation materials to wrap the blocked outlet.
- ◆ When shipped out from factory, both the Drainage outlets are blocked by rubber plugs.
- ◆ When connecting the drainage pipe with the unit, do not apply excessive force to the pipeline at the side of the unit. The bunging position of the pipeline shall be near the unit.
- ◆ Purchase general-purpose hard PVC pipe locally to be used as the drainage pipeline. When carrying out connection, place the end of the PVC pipeline into the drainage hole. Use flexible drainage tube and tighten it clamp. Never use adhesive to connect the drainage hole and the flexible drainage tube. (As shown in Figure 1-1-9)
- ◆ When the common drainage pipe is used for multiple units, the common pipe shall be about 100mm lower than the drainage outlet of each set of unit. A pipe with thicker wall shall be used for such purpose.

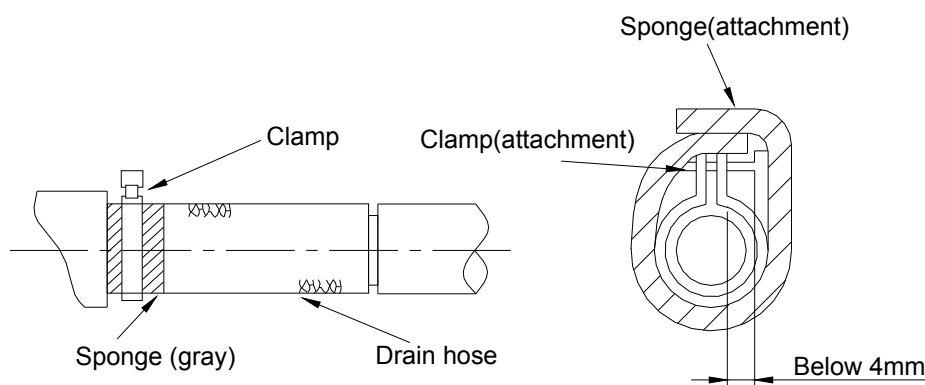


Figure 1-1-9

1) Testing of Drainage System

- ◆ After the electrical installation is completed, carry out the testing of the drainage system.
- ◆ During the test, check if the water correctly flows through the pipelines. Carefully observe the joints to ensure that there is no leakage. If the unit is to be installed in a new house, carry out testing before decorating the ceiling.

2) Matters of Attention

- ◆ The joint of Drainage Pipeline must not have leakage.
- ◆ The Drainage Pipeline shall be installed with an inclining angel of $5\sim 10^\circ$, so as to facilitate the drainage of condensate. The joints of the Drainage Pipeline must be covered by thermal insulation materials to avoid generation of exterior condensate. (As shown in Figure 1-1-10)

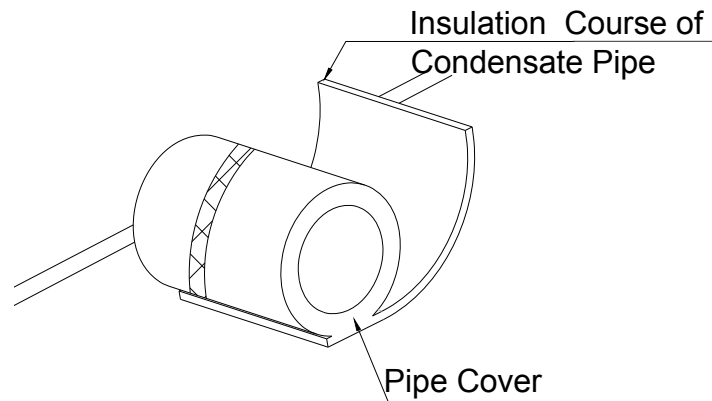


Figure 1-1-10

1.1.7 Installation of Air Duct and ceiling opening

Caution:

- ◆ The air supply pipe, the air intake pipe and the fresh air pipe must be covered with a layer of thermal insulation, so as to avoid thermal leakage and condensation. Firstly apply liquid nail on the ducts, then attach the thermal insulation cotton with a layer of tinfoil. Use the liquid nail cover to fix it. Lastly use tinfoil adhesive tape to carefully seal the joints; other equivalent thermal insulation materials can also be used.
- ◆ The air supply ducts and the air intake pipes shall be fixed to the prefabricated boards of the ceiling by using iron supports. The joints of the ducts must be sealed by glue so as to avoid leakage.
- ◆ The design and installation of air pipes must be in conformity with the relevant state engineering criteria.
- ◆ The edge of the air intake pipes must be at least 150mm away from the wall. The air intake must be covered with filter.
- ◆ Silencing and shock absorption shall be considered in the design and installation of the air pipes. Additionally, the noise source must be far away from where people stay. The air intake grille not be located above the place where users stay (offices and rest places, etc.).

1) Installation of the Air Supply Duct

- ◆ Installation of Rectangular Air Duct as shown in Figure 1-1-11

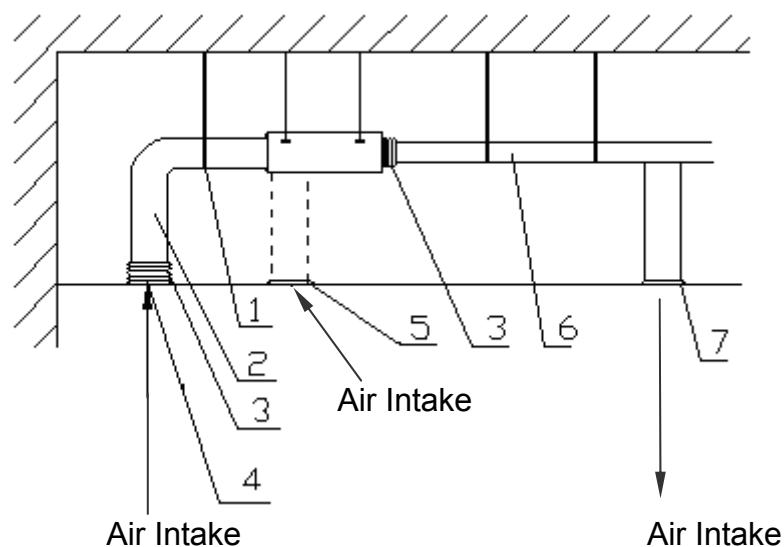


Figure 1-1-11

S/N	Name	S/N	Name
1	Hanger	5	Air Inlet
2	Air Intake Duct	6	Main Air Supply Duct
3	Canvas Air Duct	7	Air Outlet
4	Air Inlet		

- ◆ Installation of Round Air Duct as shown in Figure 1-1-12

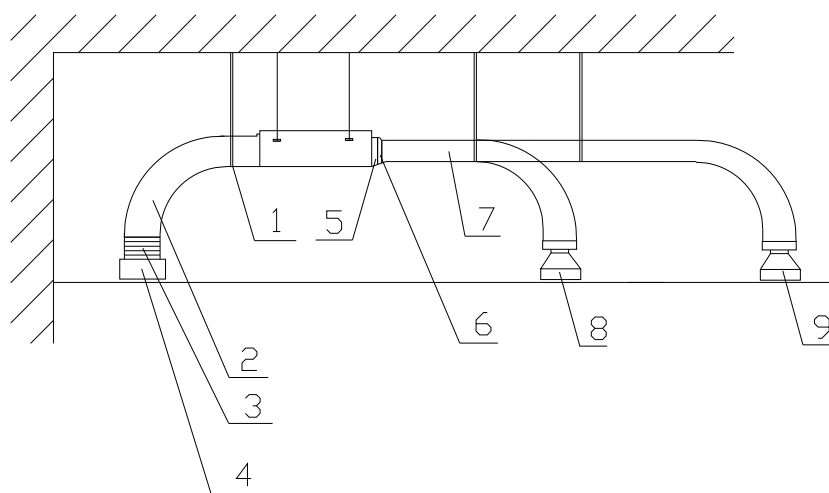
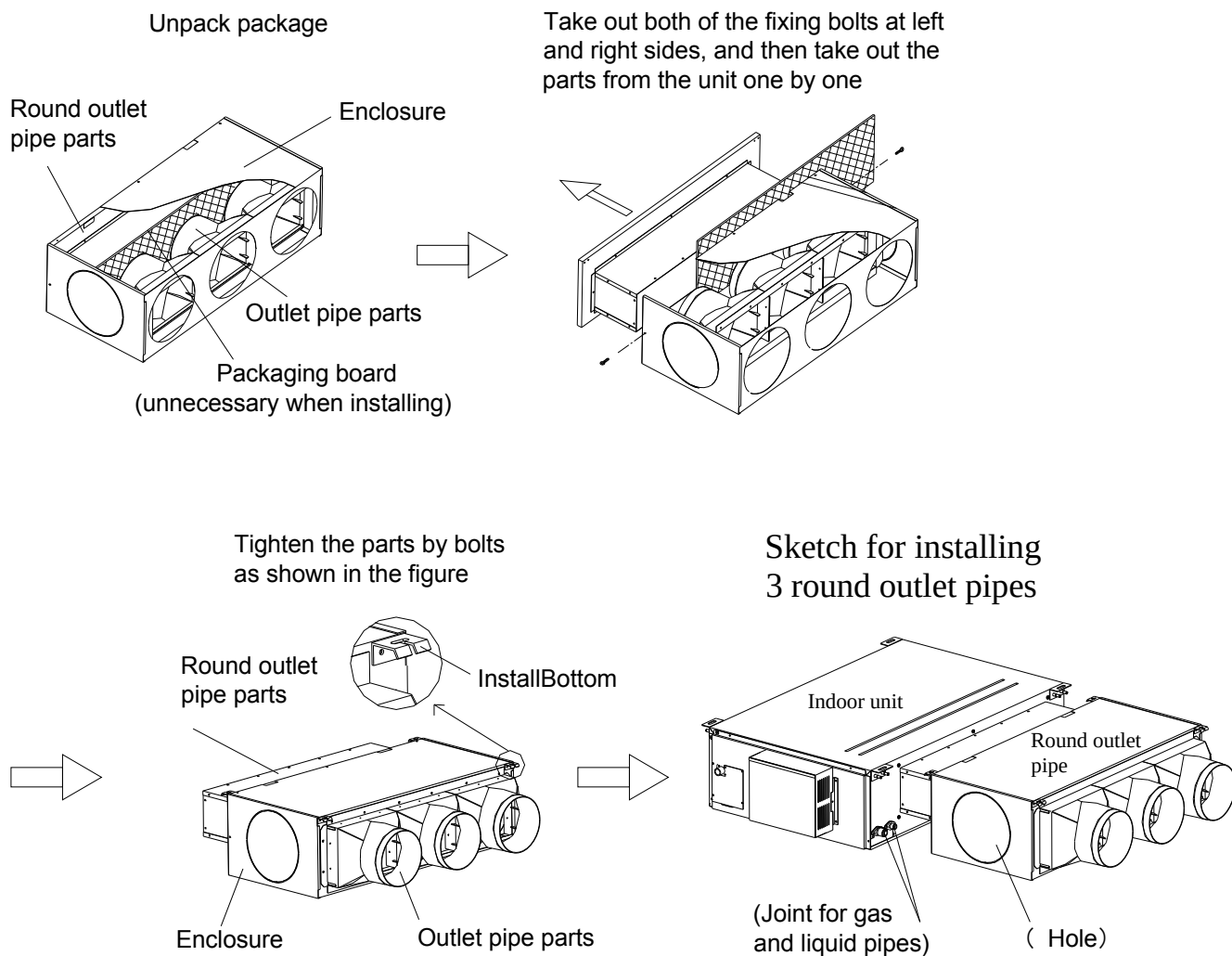


Figure 1-1-12

S/N	Name	S/N	Name
1	Hanger	6	Transition Air Duct
2	Air Intake Duct	7	Air Supply Duct
3	Canvas Air Duct	8	Diffuser
4	Air Intake Grille	9	Diffuser Joint
5	Air Outlet		

2) Installation of Round Air Outlet



If you are going to install a 5-round outlet pipe, please purchase another set of parts for the round outlet pipes that used at both sides.

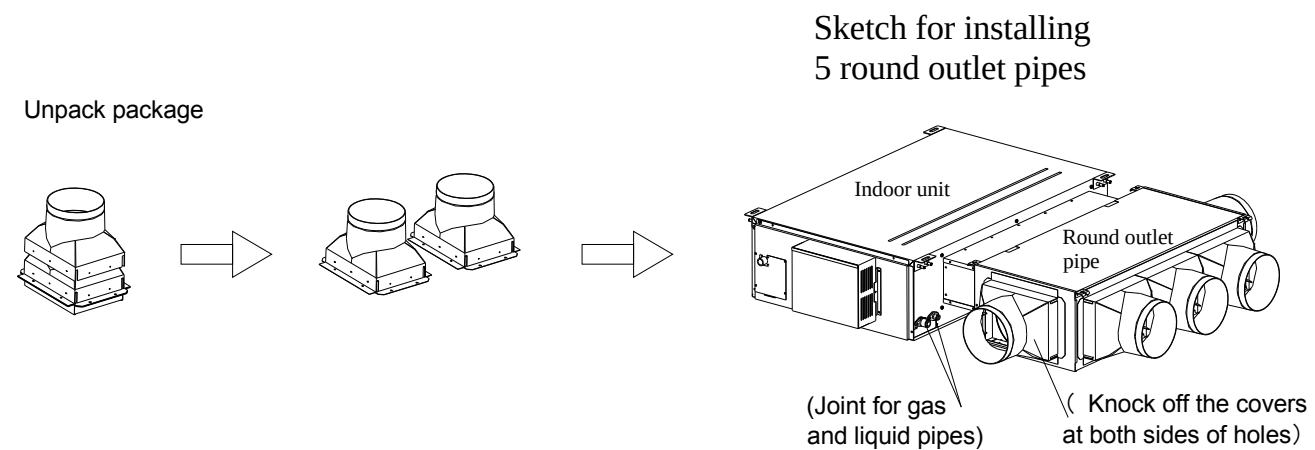


Figure 1-1-13

2. OUTDOOR UNIT INSTALLATION

2.1 Before Installation

- ◆ After receiving the unit, check if there is any damage during transportation. If there is damage on the surface or inside, inform the transportation company or equipment supplier in written form immediately.
- ◆ After receiving the unit, check the unit and its accessories according to the packing list. Confirm that the model is the same and the unit is intact. At the same time, check the specification and quantity of the accessories.
- ◆ Select the correct route and method of transportation to avoid damage of the unit and any accident incurred. Out of protecting the unit and security consideration, it is advised that move the unit with its package. Even if that is forbidden in special situation, don't remove the carton to avoid looseness and drop.
- ◆ Check if the installation base is solid. When the unit is installed in the metal part of the building, must make sure electric insulation and make sure that it conforms with related standards.
- ◆ Make sure that the installation site is far away from where the flammable or explosive substances are stored to avoid explosion or fire may occurred by leakage of such substances.

2.2 Installation Site

- ◆ To ensure the unit in proper function, selection of installation location must be in accordance with following principles:
- ◆ Outdoor unit shall be installed so that the air discharged by outdoor unit will not return and that sufficient space for repair shall be provided around the machine.
- ◆ The installation site must have well ventilated, so that the outdoor unit can take in and exhaust enough air. Ensure that there is no obstacle for the air intake and exhaust of the outdoor unit. If there is any obstacle blocking the air intake or exhaust, remove it.
- ◆ Place of installation shall be strong enough to support the weight of outdoor unit, and it shall be able to insulate noise and prevent vibration. Ensure that the wind and noise from the unit will not affect your neighbors.
- ◆ Avoid direct sunshine over the unit. It is better to set up a sun shield as the protection.
- ◆ Place of installation must be able to drain the rainwater and defrosting water.
- ◆ Place of installation must ensure the unit will not be buried under snow or subject to the influence of obstacle or oil fog.
- ◆ The installation site must be at a place where the air exhaust outlet does not face strong wind.
- ◆ Lift the outdoor unit with indicated holes for hoist. Protect the unit from corrosion when lifting, in case it will rust.

Rubber vibration pad and rubber junction shall be applied to meet the requirements of noise and vibration.

- ◆ Installation dimensions shall comply with the instruction manual and the outdoor unit shall be fixed.
- ◆ Installation of the unit shall be executed by professionals.

2.3 Cautions for Installation

- ◆ The installation of the outdoor unit shall guarantee that the discharged air will return and enough service space shall be reserved around the unit.
- ◆ Installation site shall be well ventilated so that the unit can intake and discharge adequate air. Make sure that there is no obstruction for air inlet and out let. If there is, please remove such obstructions.
- ◆ If the unit is installed on the solid surface, fix the unit with M10 bolts and nuts and make sure the verticality and horizontality of the unit.
- ◆ Lift the outdoor unit with indicated holes for hoist. Protect the unit from corrosion when lifting, in case it will rust.
- ◆ Rubber vibration pad and rubber junction shall be applied to meet the requirements of noise and vibration
- ◆ If drain pipe shall be installed, insert the joints of drainage into outlet in base plate of the outdoor unit. And then connect the joints with an drain pipe.
- ◆ Wall bushing shall be installed when pipe goes through the wall.
- ◆ Installation dimensions shall comply with the instruction manual. And the outdoor unit shall be fixed to the base or support.
- ◆ Installation of the unit shall be executed by professionals.

2.4 Dimension Data

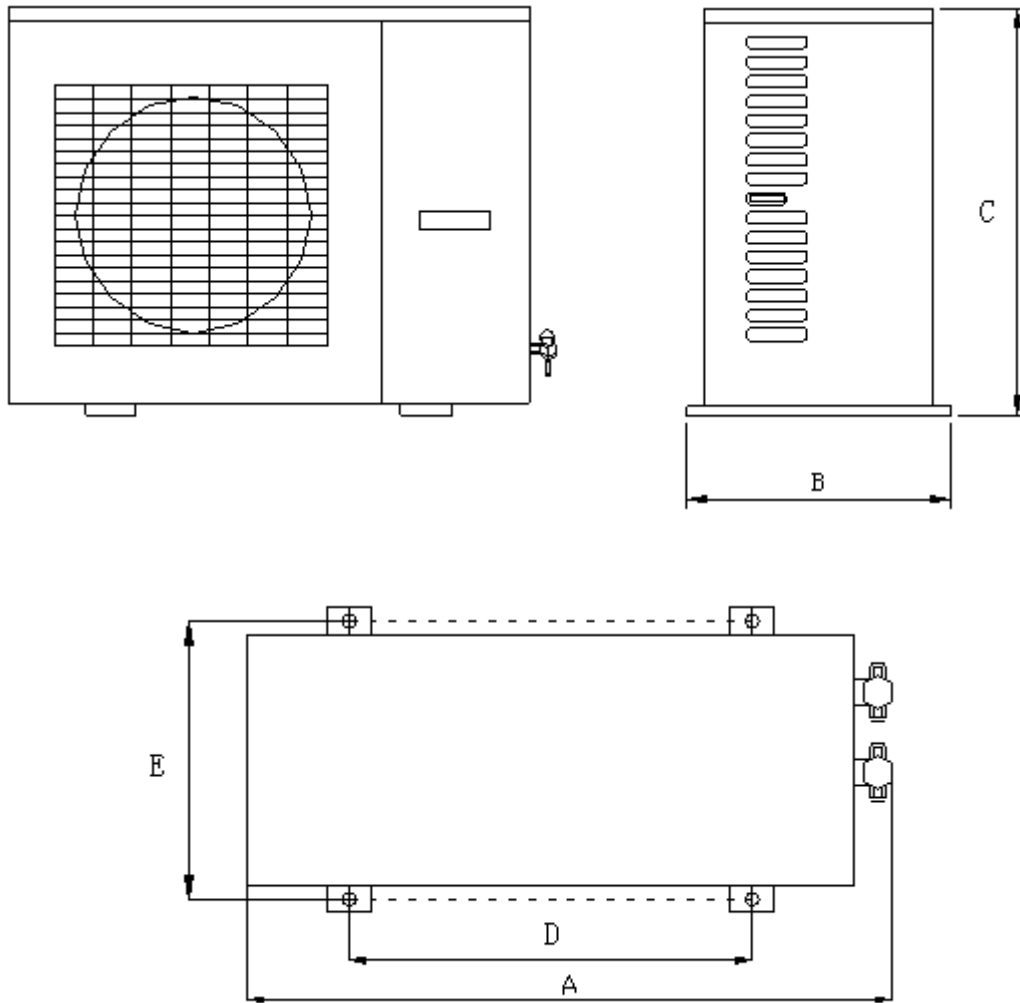


Figure 2-4-1

Unit : mm

Model	A	B	C	D	E
RY24PEV1K	1018	412	695	572	378
RY30PEV1K R30PEV1K	980	427	790	610	395
RY36PEY1K RY36PEY1K	1018	412	840	572	378
RY42PEY1K R42PEY1K	1107	440	1100	631	400
RY48PEY1K RY48PEY1K					

2.5 Installation Clearance Data

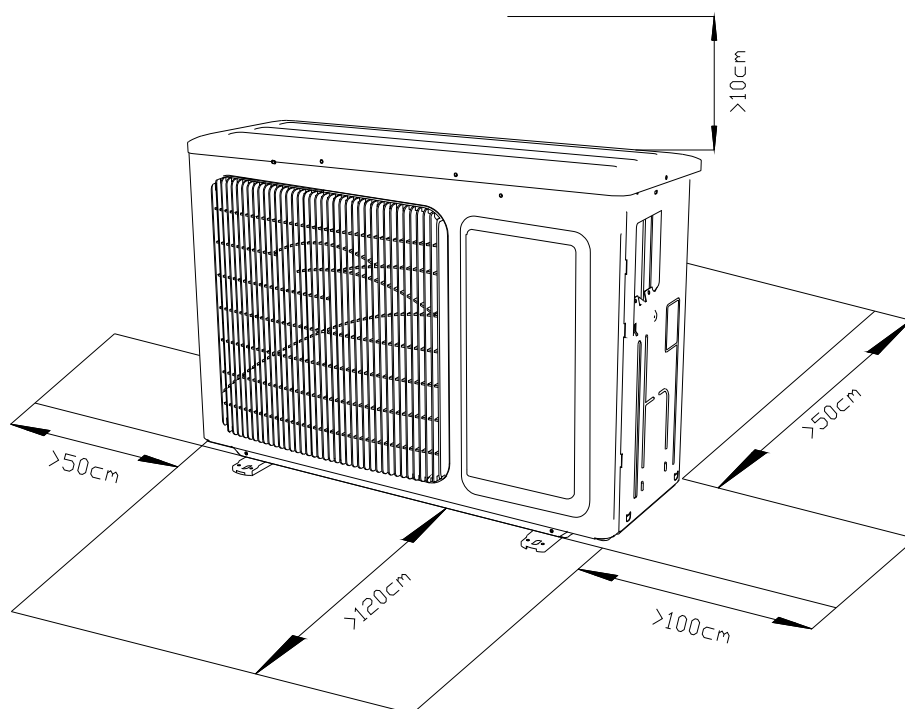


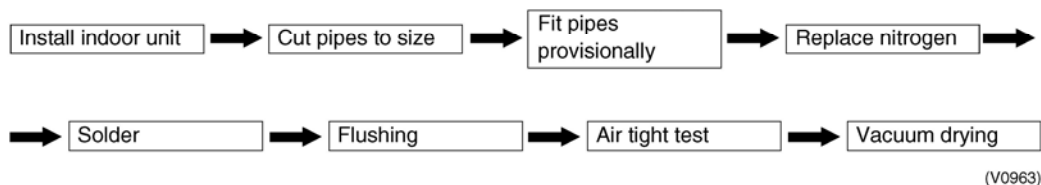
Figure 2-5-1

3. REFRIGERATION PIPING WORK

3.1 Refrigeration Piping Work Procedures

1) Connecting Pipe

■ Operational steps



The 3 Principles of Refrigerant Piping

The “3 principles of refrigerant piping” must be strictly observed

	Cause of problem	Actoin to avoid problem
Dry	● Rainwater, work water, etc. gets into pipes from outside ● Moisture generated inside pipes due to condensation	Pipe covering → Flushing → Vacuum drying
Clean	● Formation of oxides inside pipes during soldering ● Dirt, dust or other extraneous material gets into pipes from outside	Replace nitrogen → Flushing Pipe covering → Flushing
Air tight	● Leak from soldered area ● Leak from flared area ● Leak from flange area	Use the proper materials (copper pipe, solder, etc.) Adhere strictly to standard soldering work practice Adhere strictly to standard flaring work practice Adhere strictly to standard flange connection work parctice → Air tight test

(V0964)

The 3 principles of refrigerant piping

Dry	Clean	Air tight
Make sure there is no moisture inside the pipes	Make sure there is no dirt inside the pipe	Make sure the refrigerant does not leak out
(V0965)	(V1148)	(V1149)

Figure 3-1-1

- ◆ Match the flaring of copper pipe to the center of screwed connection, and then screw the flared nut up by hands.
- ◆ Screw flaring nut with torque wrench until the spanner sound, which is shown as figure 3-1-1.

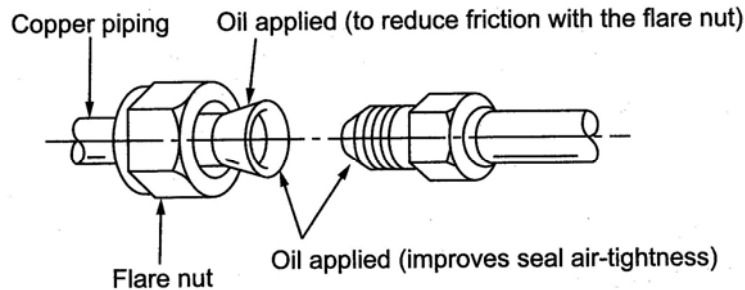


Figure 3-1-2

Form 3-1-1 the tightening torque needed for tightening nut

Diameter of Pipe	Tightening torque
1/4 "	15-30 (N·m)
3/8 "	35-40 (N·m)
5/8 "	60-65 (N·m)
1/2 "	45-50 (N·m)
3/4 "	70-75(N·m)

- ◆ Degree of curvature of the tubing cannot be too small or the pipe might be broken up. When bend the piping, bending apparatus shall be applied.
- ◆ Brazing port shall be downward and horizontal when brazing the pipeline. Try to avoid the upward brazing as shown in figure 3-1-3 which easily affects welding quality and causes leakage.

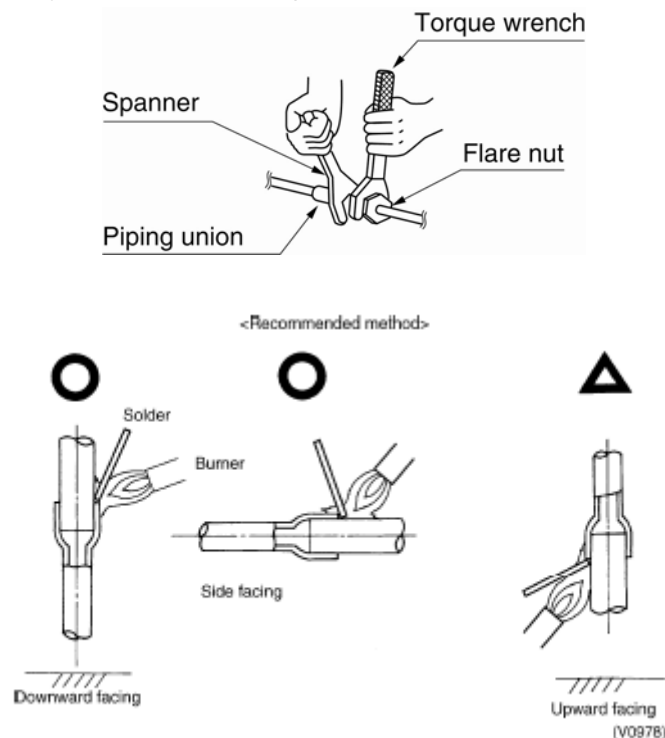


Figure 3-1-3

- ◆ Wrap connecting pipe and the joints that have not insulated with sponge and bind them up with plastic tape.
- 2) Vacuuming and leak test.
- ◆ Remove the bonnets of gas valve and liquid valve.
 - ◆ Aim at the center of the pipe and screw the nut of connecting pipe tightly with hands
 - ◆ Screw nuts tightly with spanner.
 - ◆ Remove check valve bonnet of gas valve.
 - ◆ Unscrew the stem of gas valve for 1/4 circle with hexagon spanner and at the same time, open the stem by screwdriver to discharge gas.
 - ◆ Discharge the gas for 15s until gas of refrigerants appears. And then, shut the check valve and screw the bonnet tightly.
 - ◆ Open stem of gas valve and liquid valve completely (as figure 3-1-4)

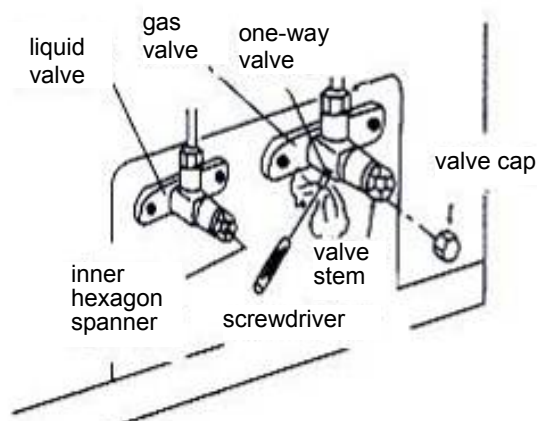


Figure 3-1-4

- ◆ Screw the bonnet tightly and then detect if there is any leakage on the joint connecting indoor and outdoor unit and pipeline by soap water and Leakage detector.

Caution:

If possible, it is better to use vacuum pump to discharge the air inside the piping and indoor unit from the service port. The method of using vacuuming is as follows:

- ◆ Take out the flare nut cover of the liquid and gas valve service port.
- ◆ Connect the manifold gauge to the vacuum pump, having the low-pressure end linking to the gas valve and high-pressure and linking to the liquid valve. (As shown in Figure 3-1-5)

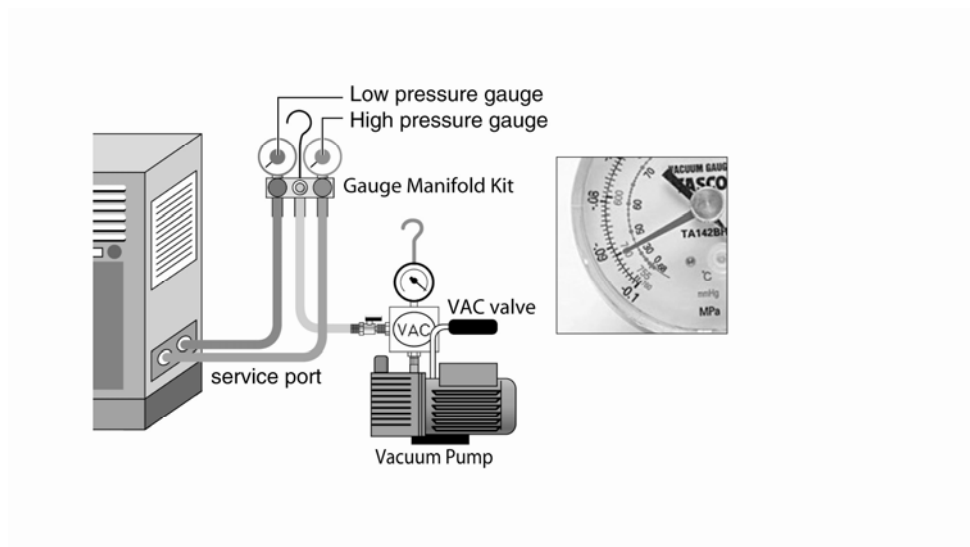
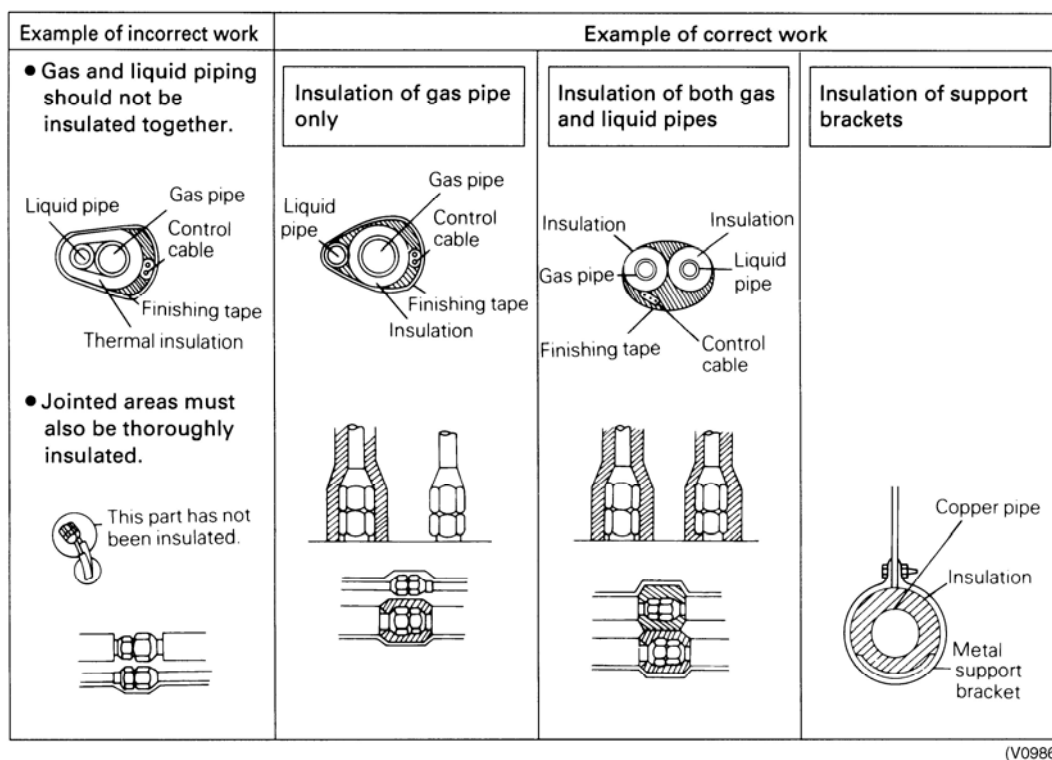


Figure 3-1-5

- ◆ Starting the vacuum pump then, when the low pressure gauge turns to 760mmHg, closing the low pressure handle and stopping vacuum pump. Keep for 15 minutes, ensuring the pressure of the low pressure gauge remains.
 - ◆ Take out the valve cap of the gas valve together with the liquid valve.
 - ◆ Loosing the stem of liquid valve until the pressure rise to 0 Kg/cm².
 - ◆ Dismantle the base from the gas valve then, tighten flare unit.
 - ◆ Loose the valve stem of the gas valve as well as the liquid valve entirely.
 - ◆ Tighten the valve stem of the gas valve and liquid valve so as to check whether leakage occurred.
- 3) Installation of Protective Layer of Connecting Pipe
- ◆ To avoid generation of condensate on the connecting pipe and avoid leakage, the gas pipe and the liquid pipe of the connecting pipe must be covered by thermal insulation materials, be bundled by adhesive tape, and be isolated from ambient air.
 - ◆ The joint connecting to the indoor unit must be wrapped by thermal insulation material. There shall be no gap between the connecting pipe joint and the wall of the indoor unit. Refer to Figure 3-1-6.



(V0986)

Figure 3-1-6

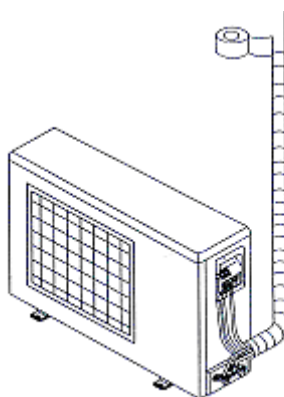


Figure 3-1-7

- ◆ Use adhesive tape to bundle the connecting pipe and the cables together. To prevent condensate from overflowing out from the drainage pipe, separate the drainage pipe from the connecting pipe and the cables.
- ◆ Use thermal insulation tape to wrap the pipes from the bottom of the outdoor unit until the upper end of the pipe where the pipe enters the wall. When wrapping thermal insulation tape, the later circle of tape must cover half of the front circle of tape (Figure 3-1-7).
- ◆ Wrapped pipe must be fixed to wall using pipe clamps.

Caution:

- ◆ After the pipes are wrapped by protective materials, never bend the pipes to form sharp angle, and otherwise the pipes may crack or break.
- ◆ Do not wrap the protective tape too tight, otherwise the efficiency of thermal insulation may be decreased. Ensure that the condensate drainage flexible tube is separate from the bundled pipes.
- ◆ After the protective work is completed and the pipes are wrapped, use seal material to block the hole in the wall, so as to prevent rain and wind from entering the room.

3.2 Caution in Connecting Pipes

Layout of connecting pipeline shall comply with the following principles according to actual situation.

- ◆ The length of connecting pipe shall be short as much as possible and it is better to restrain the length within 5m.
- ◆ Shorten the height difference between indoor and outdoor unit as much as possible.
- ◆ Lessen the quantity of elbows as much as possible.
- ◆ When the length of connecting pipe exceeds 20m, check if the lubricant of the system is enough. If not, add some oil trap properly.
- ◆ Refrigerants volume inside the outdoor unit suit for connecting pipe with 7m. If connecting pipe shall be prolonged, refrigerants shall be added accordingly. Every 1m prolonged, the added volume of refrigerant can refer to the sheet below. Allowable max. length of pipe is 30m.
- ◆ When installing the unit, if difference in height between indoor and outdoor unit exceeds 10m, one oil loop is required every 6m.
- ◆ When of the difference in height between indoor and outdoor units are different, please refer to Figure 3-2-1 for layout of pipeline.

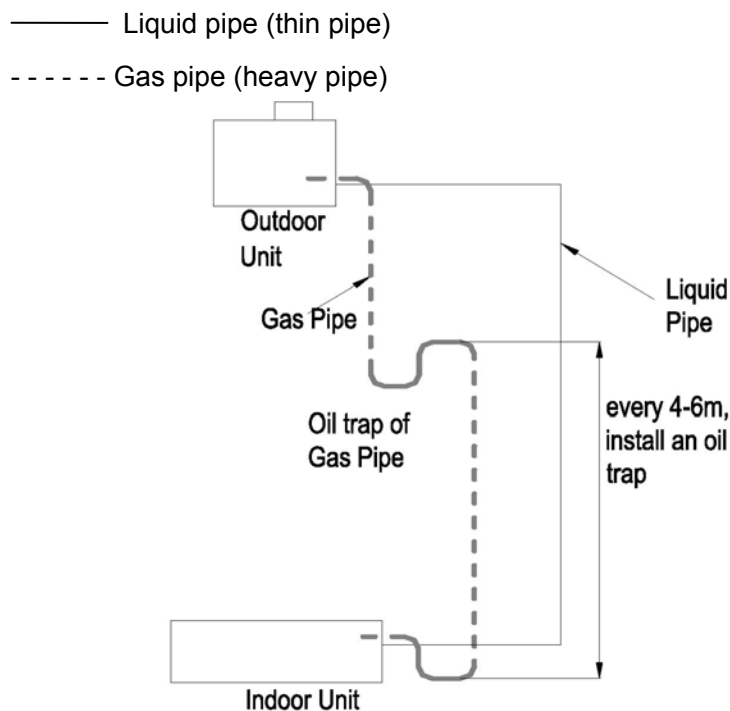


Figure 3-2-1

3.3 Specification of Connection Pipe

Model	External Diameter		Maximum Length of Connection Pipe (m)	Maximum Difference in Height between Outdoor and Indoor Unit (m)	Additional Charge of Refrigerant (g/m)
	Gas Pipe	Liquid Pipe			
RY24PEV1K R24PEV1K	5/8	3/8	30	15	60
RY30PEV1K R30PEV1K					
RY36PEY1K R36PEY1K	3/4	1/2	50	30	120
RY42PEY1K R42PEY1K					
RY48PEY1K R48PEY1K					

4. ELECTRIC WIRING WORK

4.1 Wiring Principle

4.1.1 General

- ◆ Perform wiring of the power supply in conformance with the regulations of the local electric company.
- ◆ For the control wires connecting indoor units, and between indoor and outdoor units, use of double-core shield wires is recommended to prevent noise trouble.
- ◆ Be sure to set the earth leakage breaker and the switches to the power supply section of the indoor unit.
- ◆ Supply power to each outdoor unit and provide an earth leakage breaker or hand switch for each outdoor unit.
- ◆ Store wiring system for control and refrigerant piping system in the same line.
- ◆ Arrange the cables so that the electric wires do not come to contact with high-temperature part of the refrigerant pipe; otherwise coating melts and an accident may be happened.
- ◆ Do not turn on power of the indoor unit until vacuuming of the refrigerant pipe will be completed.
- ◆ Installation should be conducted by Local Wiring Regulation.
- ◆ The rated voltage and exclusive power supply must be adopted for the air conditioners.
- ◆ The power cable should be reliable and fixed, in order to avoid the wiring terminal be suffered from force. And do not drag the power cable forcibly.
- ◆ The wire diameter of power cable should be large enough. If power cable and connection wire be damaged; it should be replaced by the exclusive cable.
- ◆ All electric installation must be done by specialist according to local law, regulation and this manual.
- ◆ It should be reliably grounded, and it should be connected to the special earth device, the installation work should be operated by the professional.
- ◆ The creep age protect switch and breaker must be installed.
- ◆ Breaker should have the thermal dropout and magnetic dropout function, in order to avoid the short circuit and overload.
- ◆ The on site connection should refer to the circuit diagram, which is stuck on the unit body.
- ◆ The unit should be reliably grounded, if it is improperly grounded that may cause electric shock or fire.
- ◆ Air conditioner is the “I” class electric appliance, thus please do conduct reliable grounding measure.
- ◆ The yellow-green two-color wiring of air conditioner is grounding wire and cannot be used for other purposes. It cannot be cut off and be fixed by screw, otherwise it would cause electric shock.
- ◆ The user must offer the reliable grounding terminal. Please don't connect the grounding wire to the following places:
 - ① Water pipe
 - ② Gas pipe
 - ③ Blowing pipe
 - ④ Other places that specialist consider them unreliable

4.1.2 Connection between wire and terminal of patch board.

1) Caution

Before installing the electrical equipment, please pay attention to the following matters which have been specially pointed out by our designers:

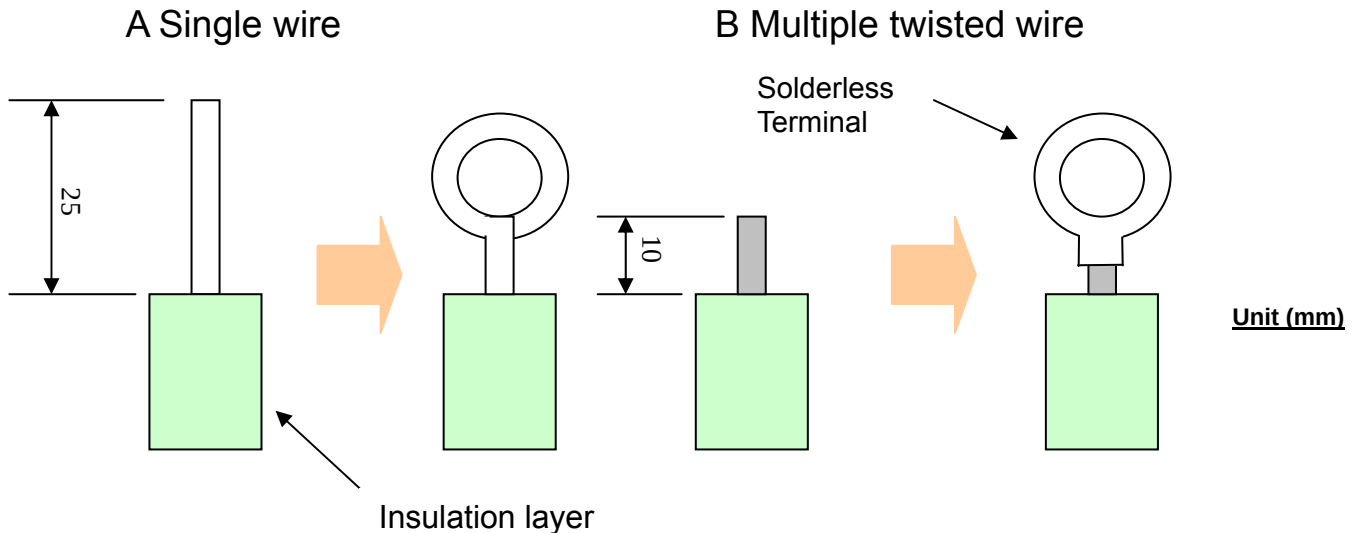
- ① Check to see if the power supply used conforms to the rated power supply specified on the nameplate.
- ② The capacity of the power supply must be large enough. The section area of wiring in the room shall be larger than 2.5mm².
- ③ The lines must be installed by specialist.
- ④ An electricity leakage protection switch and an breaker with gap between electrode heads larger than 3 mm shall be installed in the fixed line.

2) Connection of single wire

- ① Use wire stripper to strip the insulation layer (25mm long) from the end of the single wire.
- ② Remove the screw at the terminal board of the air-conditioning unit.
- ③ Use pliers to bend the end of the single wire so that a loop matching the screw size is formed.
- ④ Put the screw through the loop of the single wire and fix the loop at the terminal board.

3) Connection of multiple twisted wires

- ① Use wire stripper to strip the insulation layer (10mm long) from the end of the multiple twisted wires.
- ② Remove the screw at the terminal board of the air-conditioning unit.
- ③ Use crimping pliers to connect a terminal (matching the size of the screw) at the end of the multiple twisted wires.
- ④ Put the screw through the terminal of the multiple twisted wires and fix the terminal at the terminal board.

**Warning:**

- ◆ If the power supply flexible line or the signal line of the equipment is damaged, only use special flexible line to replace it.
- ◆ Before connecting lines, read the voltages of the relevant parts on the nameplate. Then carry out line connection according to the schematic diagram.
- ◆ The air-conditioning unit shall have special power supply line which shall be equipped with an earth leakier breaker, so as to deal with overload conditions.
- ◆ The air-conditioning unit must have grounding to avoid hazard owing to insulation failure.
- ◆ All fitting lines must use crimp terminals or single wire. If multiple twisted wires are connected to terminal board, arc may arise.
- ◆ All line connections must conform to the schematic diagram of lines. Wrong connection may cause abnormal operation or damage of the air-conditioning unit.
- ◆ Do not let any cable contact the refrigerant pipe, the compressor and moving parts such as fan.
- ◆ Do not change the internal line connections inside the air-conditioning unit. The manufacturer shall not be liable for any loss or abnormal operation arising from wrong line connections.

4.1.3 Power Cable Connection**1) Air-conditioning unit with single-phase power supply**

- ① Remove the front-side panel of the outdoor unit.
- ② Pass the cable through rubber bush.
- ③ Connect the power supply cable to the "L, N" terminals and the grounding screw.
- ④ Use cable fastener to bundle and fix the cable.

2) Air-conditioning unit with 3-phase power supply

- ① Remove the front-side panel of the outdoor unit.
- ② Attach rubber bush to the cable-cross hole of the outdoor unit.
- ③ Pass the cable through rubber bush.
- ④ Connect the power cable to the terminal and earthing screws marked "L1, L2, L3 & N".
- ⑤ Use cable fastener to bundle and fix the cable.

Caution:

- ◆ For air-conditioner with auxiliary heater, it is required to connect the power cable to the "L1, L2 L3" terminals and the grounding screw.

4.1.4 Connection of Signal Line of Wired Controller

Caution:

Take great care when carrying out the following connections, so as to avoid malfunction of the air-conditioning unit because of electromagnetic interference.

- ◆ The signal line of the wire controller must be separated from the power line and the connecting line between the indoor unit and the outdoor unit.
- ◆ In case the unit is installed in a place vulnerable by electromagnetic interference, it is better to use shielded cable or double-twisted cable as the signal line of the wired controller.
- ◆ Open the cover of the electrical box of the indoor unit.
- ◆ Pull the signal cable of the wired controller through the rubber bush.
- ◆ Plug the signal line of the wired controller onto the 4-bit pin socket at the circuit board of the indoor unit.
- ◆ Use cable fastener to bundle and fix the signal cable of the wired controller.

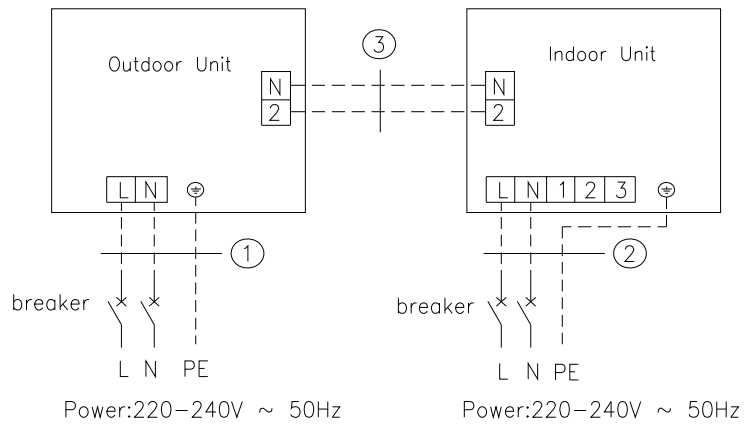
4.1.5 Connection of Wiring

- ① Disassemble right side panel and blow out hole for crossing wired on outdoor unit and cover it with cushion rubber.
- ② Remove cable cleat, connect the connecting wire of power supply to the terminal and fix it.
- ③ Fix connecting wire of power supply and signal control wire with attached clamp without applying external pressure on the terminal parts, and then connect the corresponding connector.
- ④ Make sure that the wiring has been fixed.
- ⑤ Install the front side plate.

4.2 Electric Wiring Design

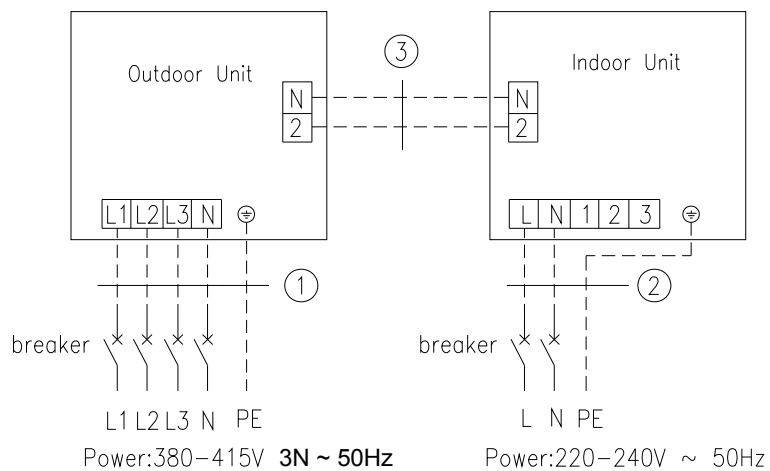
RY24PEV1K/R24PEV1K + FD(Y)M24PEV1K

RY30PEV1K/R30PEV1K + FD(Y)M30PEV1K



- ① Power cord 3x4 mm² (H07RN-F)
- ② Power cord 3x1.0 mm² (H05VV-F)
- ③ Communication cords 2x0.75mm² (H05RN-F)

RY36PEY1K/R36PEY1K + FD(Y)M36PEV1K
 RY42PEY1K/R42PEY1K + FD(Y)M42PEV1K
 RY48PEY1K/R48PEY1K + FD(Y)M48PEV1K



- ① Power cord 5x4mm²(H07RN-F)
- ② Power cord 3x1.5 mm² (H05VV-F)
- ③ Communication cords 2x0.75mm² (H05RN-F)

4.3 Specification of Power Supply Wire and Air Switch

4.3.1 Outdoor Unit

Model	Power Supply (V, Ph, Hz)	Capacity of breaker	Minimum Sectional Area of Earth Wire	Minimum Sectional Area of Power Supply Wire
		(A)	(mm ²)	(mm ²)
RY24PEV1K R24PEV1K	220-240, 1, 50	25	4.0	4.0
RY30PEV1K RY30PEV1K	220-240, 1, 50	25	4.0	4.0
RY36PEY1K R36PEY1K	380-415, 3, 50	20	4.0	4.0
RY42PEY1K R42PEY1K	380-415, 3, 50	25	4.0	4.0
RY48PEY1K R48PEY1K	380-415, 3, 50	25	4.0	4.0

4.3.2 Indoor Unit

- Duct Type

Model	Power Supply (V, Ph, Hz)	Capacity of breaker	Minimum Sectional Area of Earth Wire	Minimum Sectional Area of Power Supply Wire
		(A)	(mm ²)	(mm ²)
FD(Y)M24PEV1K	220-240, 1, 50	6	1.0	1.0
FD(Y)M30PEV1K	220-240, 1, 50	6	1.0	1.0
FD(Y)M36PEV1K	220-240, 1, 50	10	1.5	1.5
FD(Y)42PEV1K	220-240, 1, 50	10	1.5	1.5
FD(Y)48PEV1K	220-240, 1, 50	10	1.5	1.5

Part 4

MAINTENANCE

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1. Remote controller display malfunction and contents

Malfunction Code	Trouble Case	Origin of Trouble Signal	Measure
E1	Actuation of High pressure switch	High pressure switch	Abnormality is detected when the contact of the high pressure switch opens for 3 sec. The system will be shut down. Only On/Off button is acceptable. But the other buttons are not acceptable. This fault cannot be recovered automatically.
E2	Indoor anti-freezing Protection	Evaporator temperature thermistor of indoor unit	When defrosting operation and dehumidifying operation have been performed a period of time, in the case of detecting the evaporator temperature less than -2°C by the evaporator temperature thermistor, the compressor and outdoor unit fan will stop. In the case of the evaporator temperature 10°C or more, the alarm displays malfunction code on the screen and the compressor will be stopped for 3 mins and then the system will operate.
E3	Actuation of low pressure switch	Low pressure switch	When the unit is running or standby (the compressor has been operated for more than 3mins), the low pressure switch opens for more than 30sec and the screen will display malfunction code.
E4	Abnormal discharge temperature	Discharge temperature thermistor	After the startup of compressor, the discharge temperature is higher than 130°C for more than 30sec, malfunction code (E4) will be displayed on the screen and the system will be shut down. After stopping the compressor for 3 mins, if the discharge temperature thermistor detects that the discharge temperature is lower than 90°C for more than 5 sec, the compressor will re-start. The malfunction will be determined according to the retry 3 times. The malfunction will be not cancelled automatically.
E5	Compressor overheat	Compressor	After the startup of the compressor, if the overload switch opens for more than 3 sec, the malfunction of the overheat for the compressor will be displayed on the screen. After the compressor has been stopped for 3 mins, if the malfunction has been recovered, the compressor will re-start. When overheat activates 3 times within 30mins, the malfunction of overheat will be determined according to the retry 3 times. The reset for the malfunction of overheat is manual reset. Therefore, the malfunction of overheat cannot be recovered automatically. Buzzer will sound. Press On/Off button to recover.

E6	Malfunction of communications	Communication	Check the communication state between the indoor unit PCB and outdoor unit PCB by micro-computer. Abnormality is detected when the correct communication is not conducted in 30sec. When the malfunction of communication occurs, the system will be shut down the screen will display the malfunction code (E6).The reset for the communication failure is automatic reset.
E9	Malfunction of drain water level	Liquid water level	Malfunction of drain water level is detected when the liquid water level switch opens for more than 8sec. the screen will display the malfunction code (E9). The reset for fill water protection is manual reset.
F0	Malfunction of indoor room temperature thermistor at air intake	Indoor room thermistor	Malfunction of indoor room temperature thermistor at air intake is detected when a short circuit or an open circuit in the indoor room temperature thermistor for more than 5 sec. The indoor room temperature value will be set as 24°C forcibly. The reset for the malfunction of indoor room temperature thermistor is automatic reset. If the malfunction of indoor room temperature thermistor will be reset in air supply mode, the malfunction code (F0) will disappear on the screen and the indoor unit fan will run normally.
F1	Malfunction of evaporator temperature thermistor	Evaporator temperature thermistor	Malfunction of evaporator temperature thermistor is detected when a short circuit or an open circuit in the evaporator temperature thermistor for more than 5 sec. The system will be shut down in cooling operation and dehumidifying operation. The screen will display the malfunction code (F1) on the screen. The reset for the malfunction of evaporator temperature thermistor is automatic reset. In air supply mode, the screen will display the malfunction code (F1) on the screen. However, the indoor unit fan will run normally in this case.
F2	Malfunction of condenser temperature thermistor	Condenser temperature thermistor	Malfunction of condenser temperature thermistor is detected when a short circuit or an open circuit in the condenser temperature thermistor for more than 5 sec. The system will be shut down in cooling operation and dehumidifying operation. The screen will display the malfunction code (F2) on the screen. The reset for the malfunction of condenser temperature thermistor is automatic reset. In air supply mode, the screen will display the malfunction code (F2) on the screen. However, the indoor unit fan will run normally in this case.

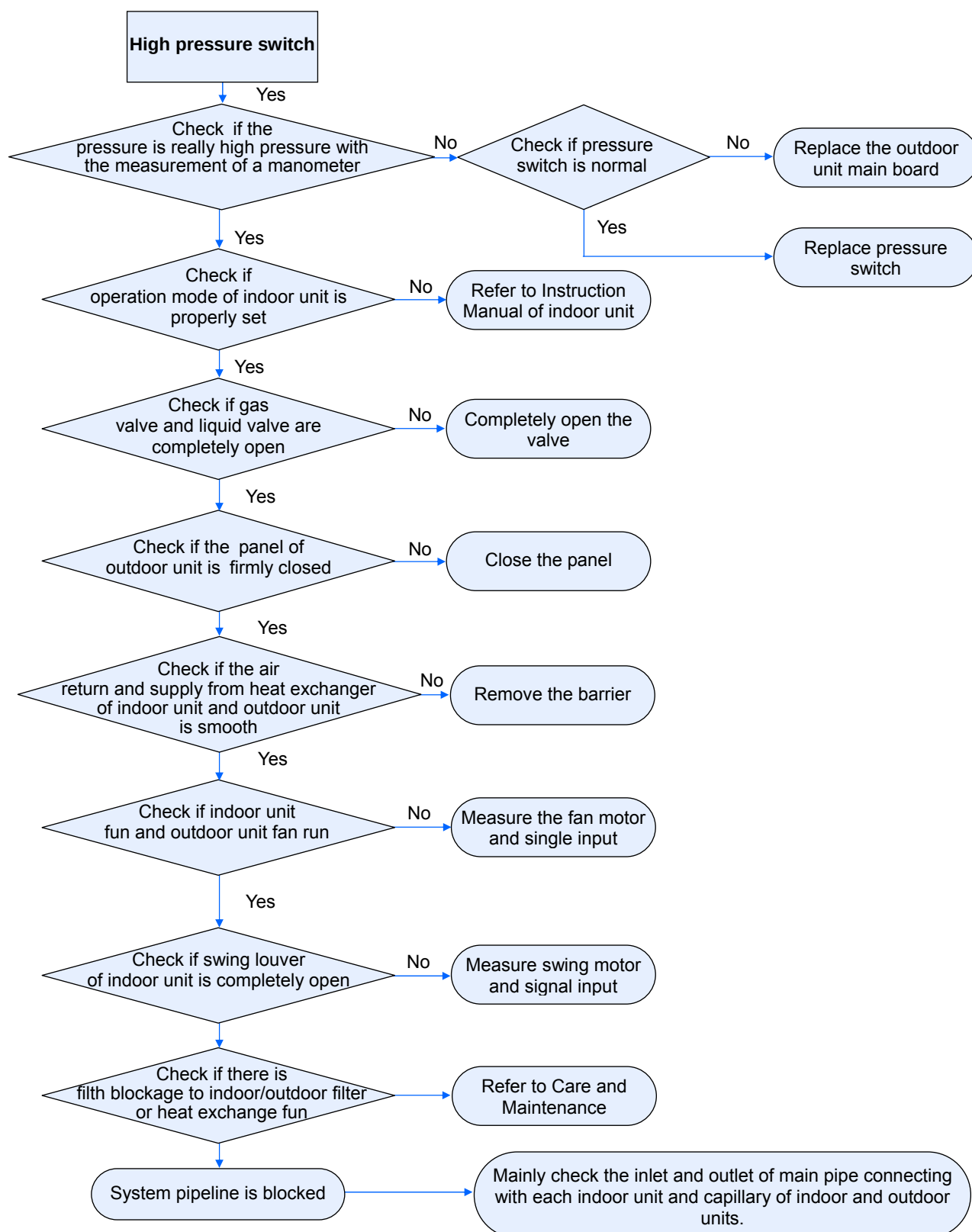
F3	Malfunction of outdoor ambient temperature thermistor	Outdoor ambient temperature thermistor	Malfunction outdoor ambient temperature thermistor is detected when a short circuit or an open circuit in the outdoor ambient temperature thermistor for more than 5 sec. The system will be shut down in cooling operation and dehumidifying operation. The screen will display the malfunction code (F3) on the screen. The reset for the malfunction of condenser temperature thermistor is automatic reset. In air supply mode, the screen will display the malfunction code (F3) on the screen. However, the indoor unit fan will run normally in this case.
F4	Malfunction of discharge temperature thermistor	Discharge temperature thermistor	Malfunction is detected when a short circuit or an open circuit in the discharge temperature thermistor for more than 5 sec. The system will be shut down in cooling operation and dehumidifying operation. The screen will display the malfunction code (F4) on the screen. The reset for the malfunction of discharge temperature thermistor is automatic reset. In air supply mode, the screen will display the malfunction code (F4) on the screen. However, the indoor unit fan will run normally in this case.
F5	Malfunction of Indoor Room temperature thermistor at Wired Remote Controller	Indoor room temperature thermistor	Malfunction is detected when a short circuit or an open circuit in the indoor room temperature thermistor for more than 5 sec. The system will be shut down in cooling operation and dehumidifying operation. The screen will display the malfunction code (F5) on the screen. The reset for the malfunction of discharge temperature thermistor is automatic reset. In air supply mode, the screen will display the malfunction code (F5) on the screen. However, the indoor unit fan will run normally in this case.

2. FLOW CHART OF TROUBLESHOOTING

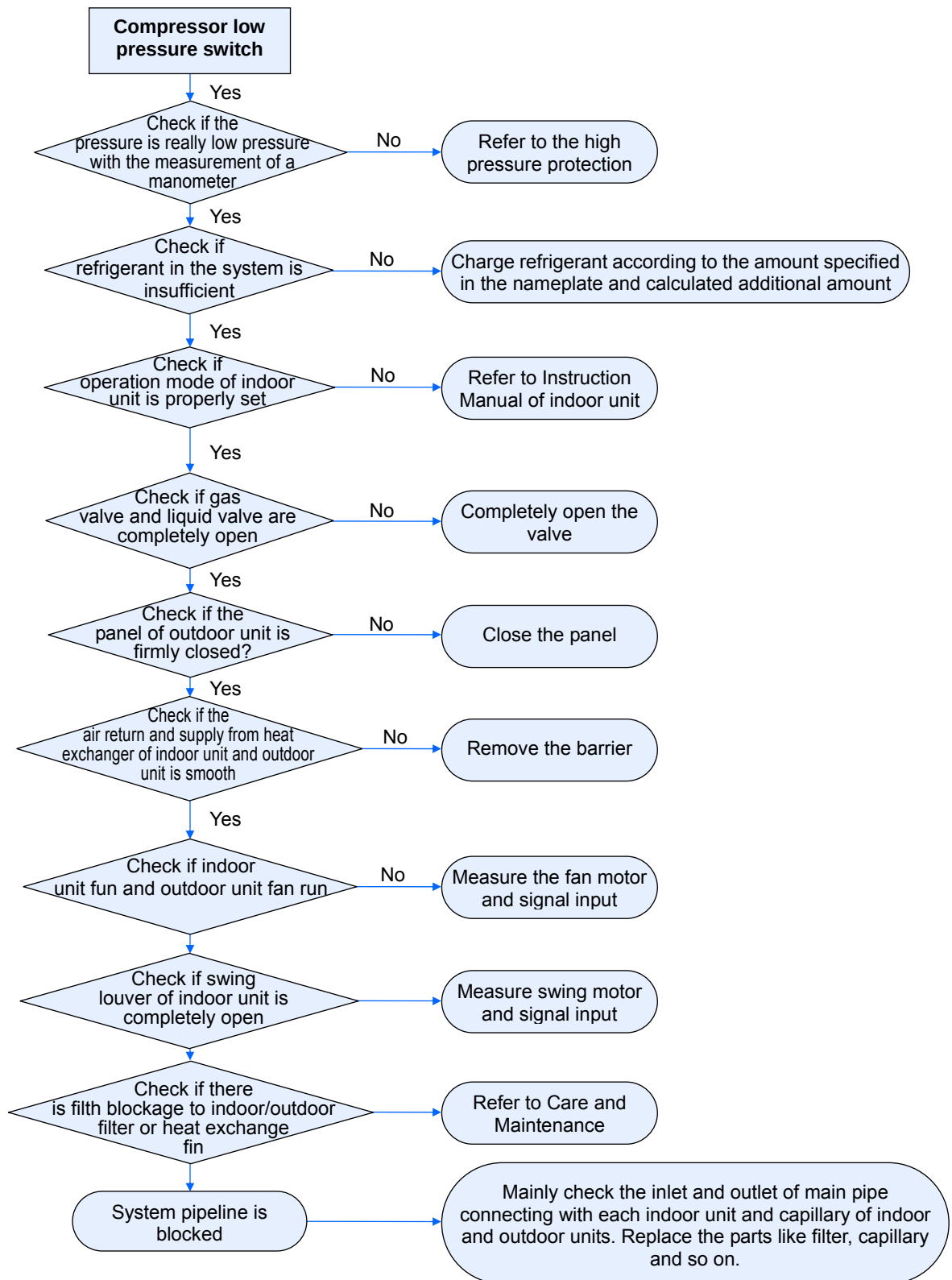
Service engineer shall collect the malfunction information as much as possible and research them thoroughly, list these electrical parts which may cause malfunction, service engineer shall be able to determine the specific reason and solve the faulted parts.

- ★ Observe the status of the complete device and do not observe the partial device.
- ★ It is advised to start from the simple operation during analyzing, judging and confirming malfunction reason, then conduct the complicated operations such removal of device, part replacement and refrigerant filling.
- ★ Find the malfunction reason carefully as unit may occur several malfunction at the same time and one malfunction may develop into several malfunction, so entire system analysis shall be established to make the judged result exact and credible.

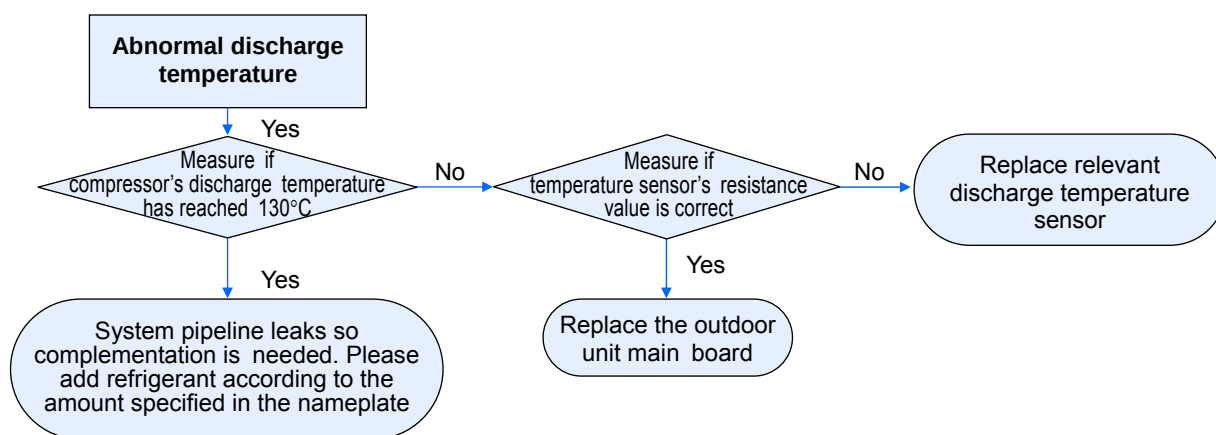
◆ Malfunction display: E1 Actuation of high pressure switch



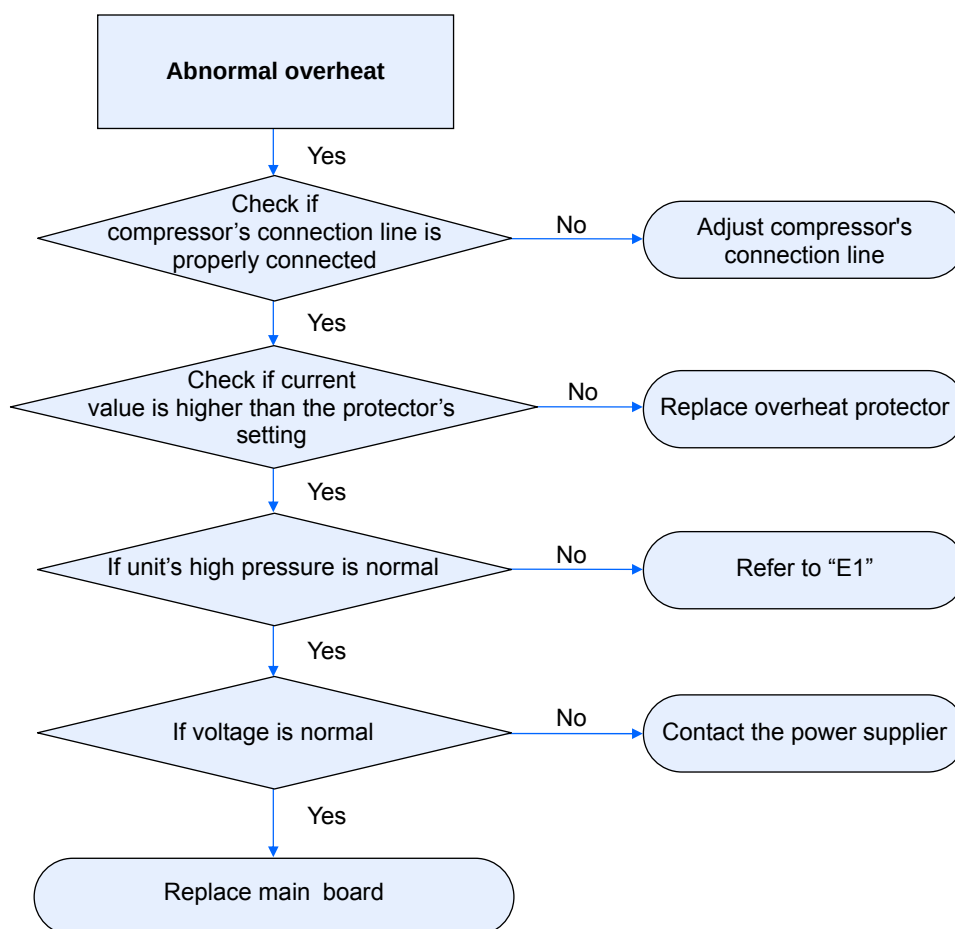
Malfunction display: E3 Actuation of low pressure switch



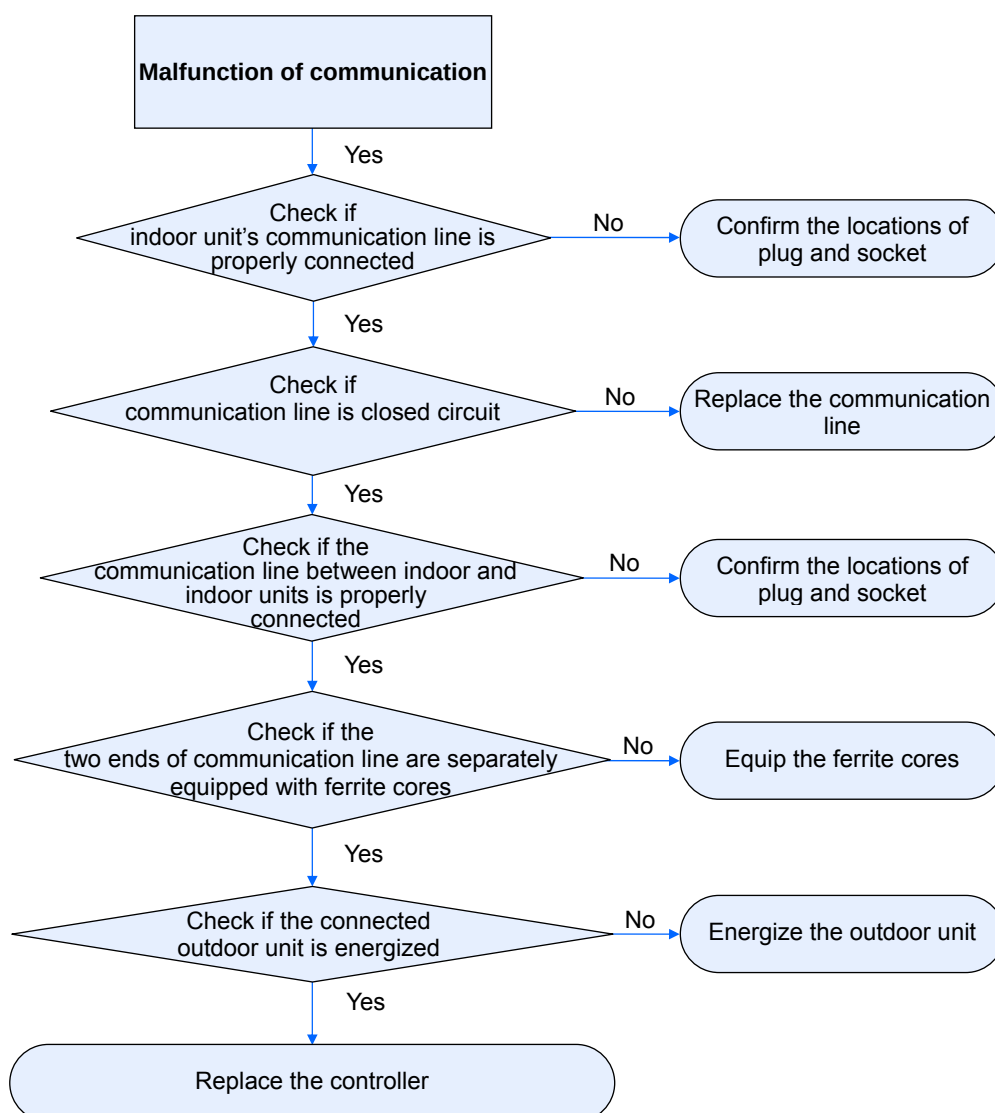
◆ Malfunction display: E4 Abnormal discharge temperature



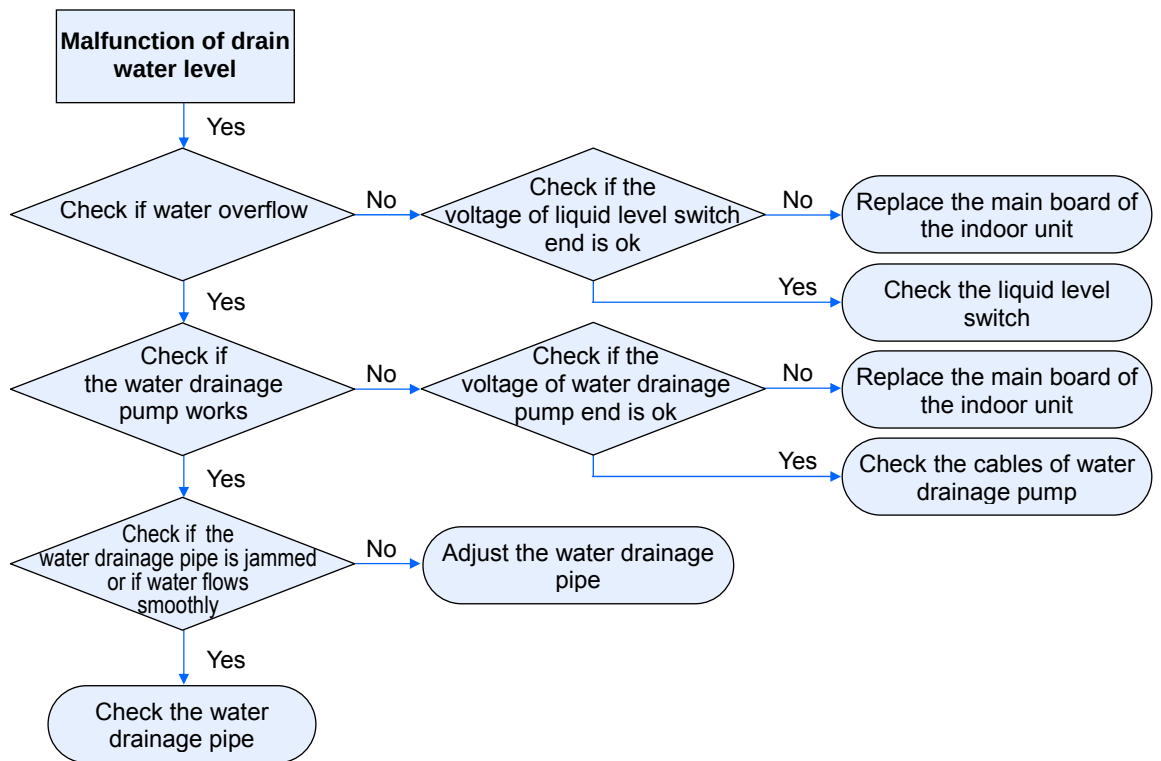
◆ Malfunction display: E5 Compressor Overheat



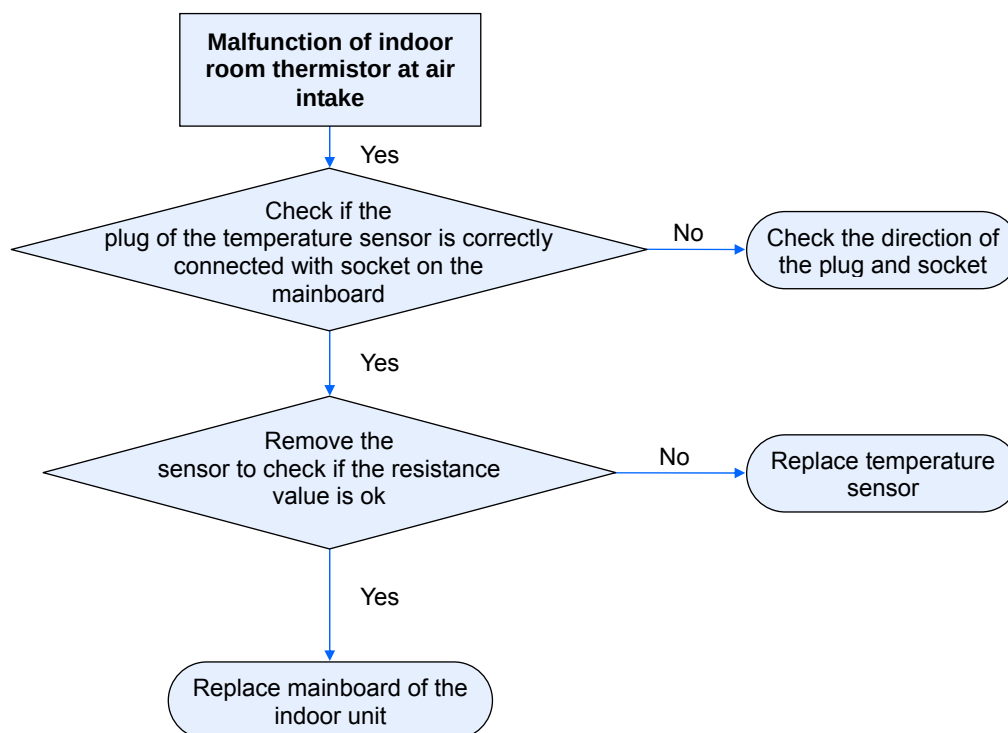
◆ Malfunction display: E6 Communications Failure



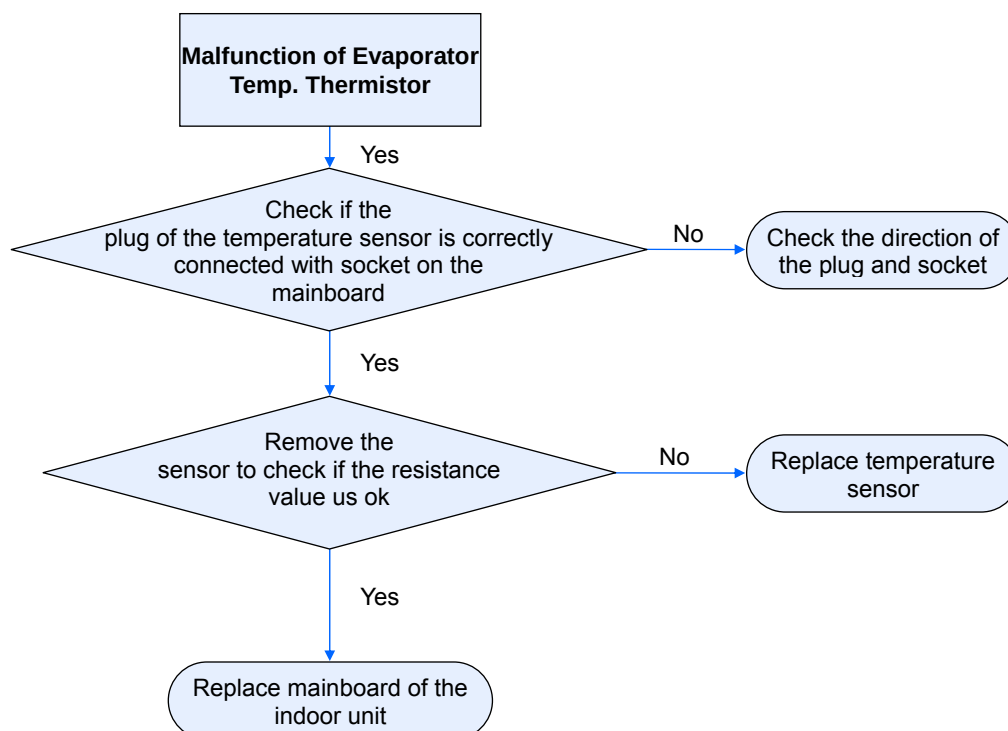
◆ Malfunction display: E9 Malfunction of drain water level



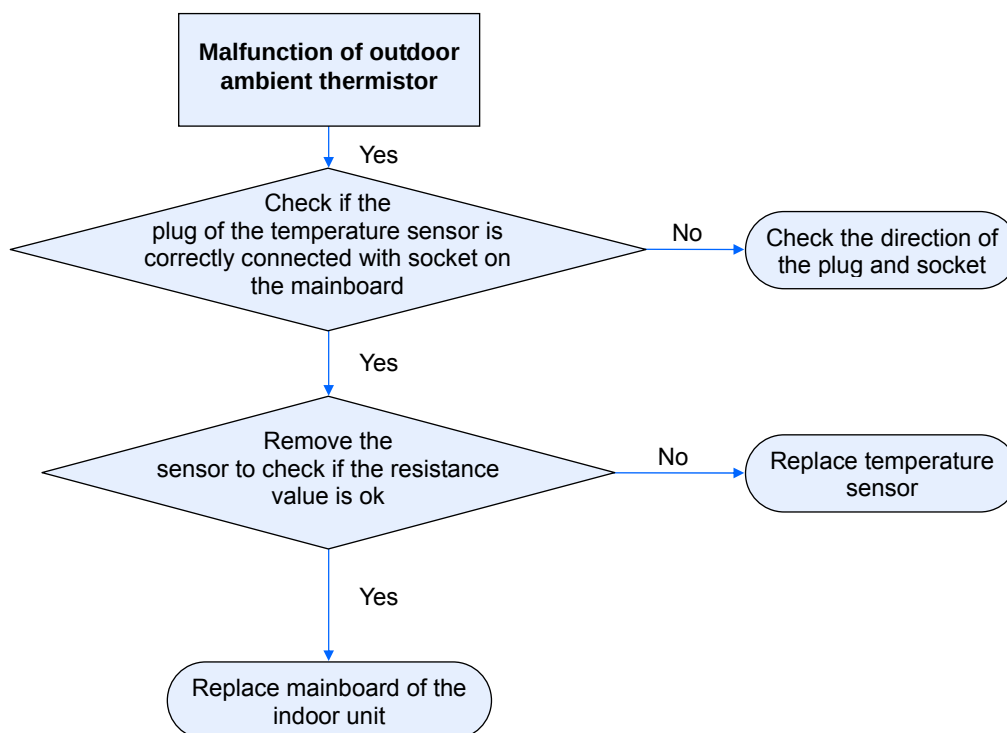
◆ Malfunction display: F0 Malfunction of Indoor Room Thermistor at Air Intake



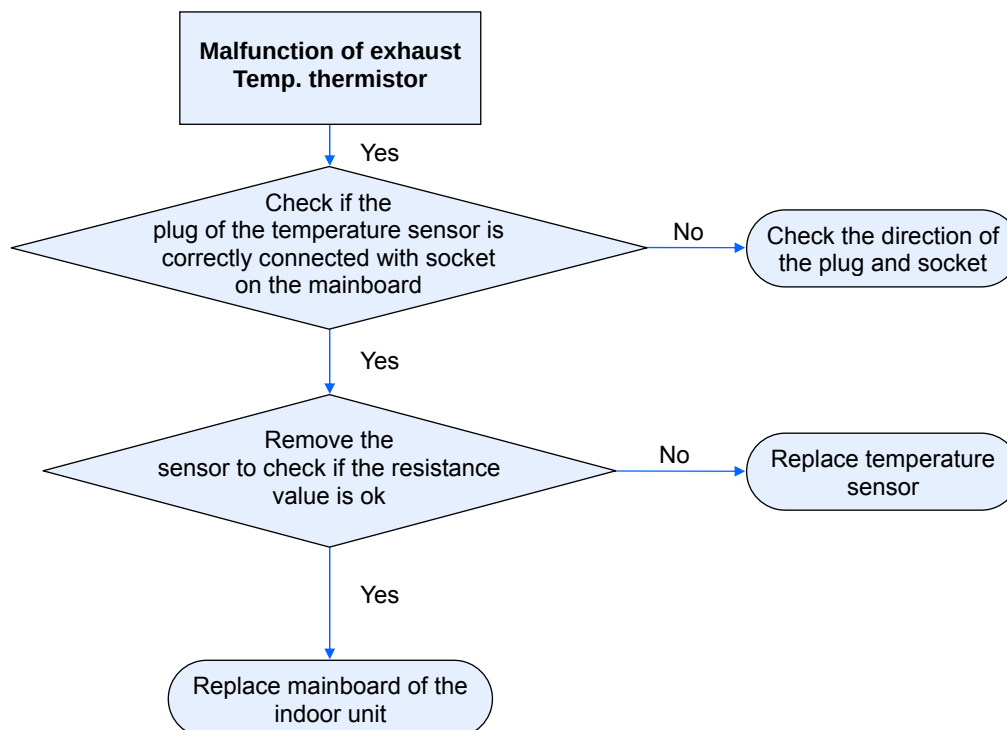
◆ Malfunction display: F1 Malfunction of Evaporator Temp. Thermistor



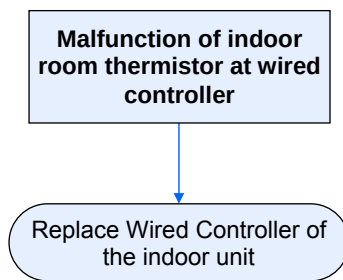
◆ Malfunction display: F3 Malfunction of Outdoor Ambient Thermistor



◆ Malfunction display: F4 Malfunction of Exhaust Temp. Thermistor



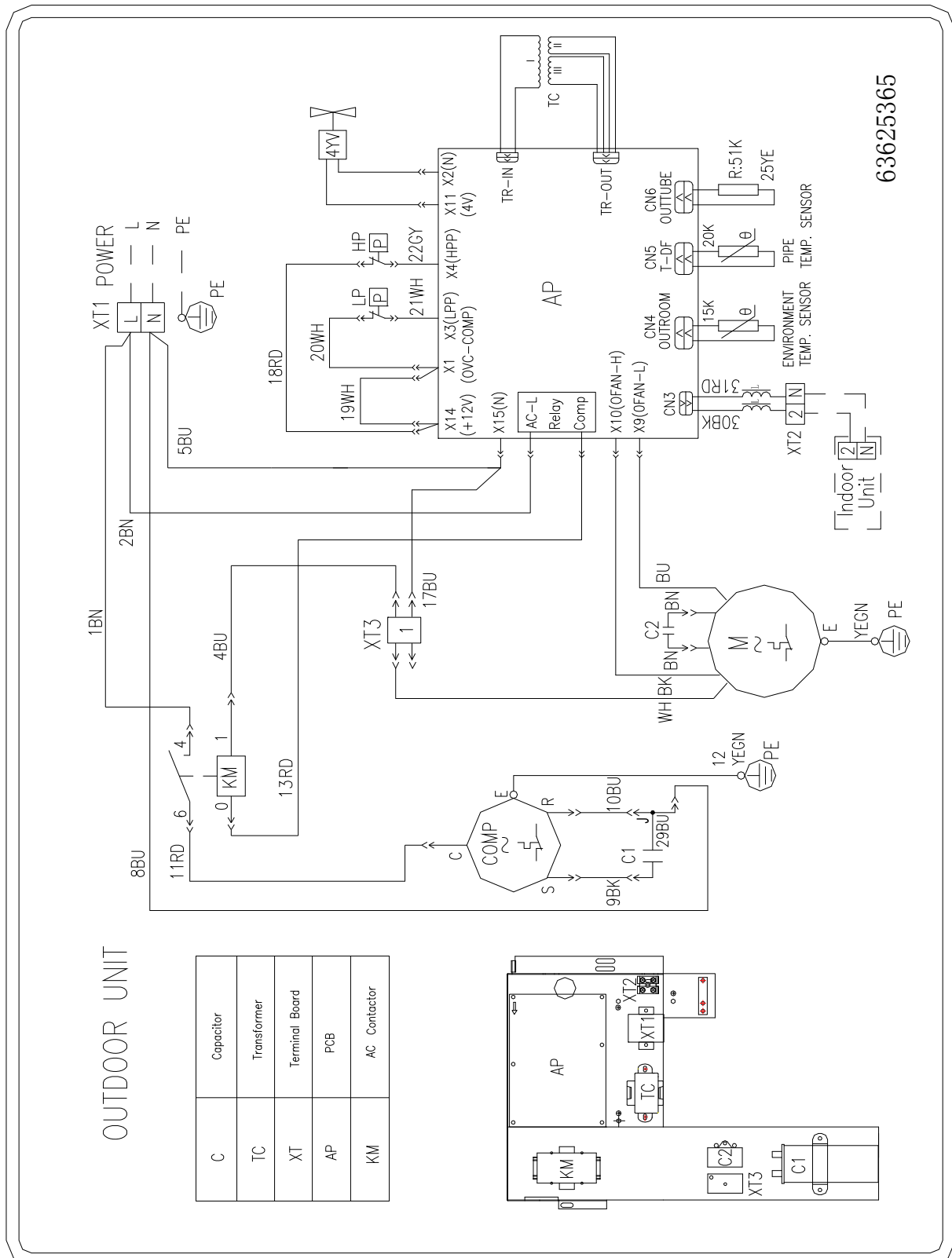
- ◆ Malfunction display: F5 Malfunction of Indoor Room Thermistor at Wired Controller



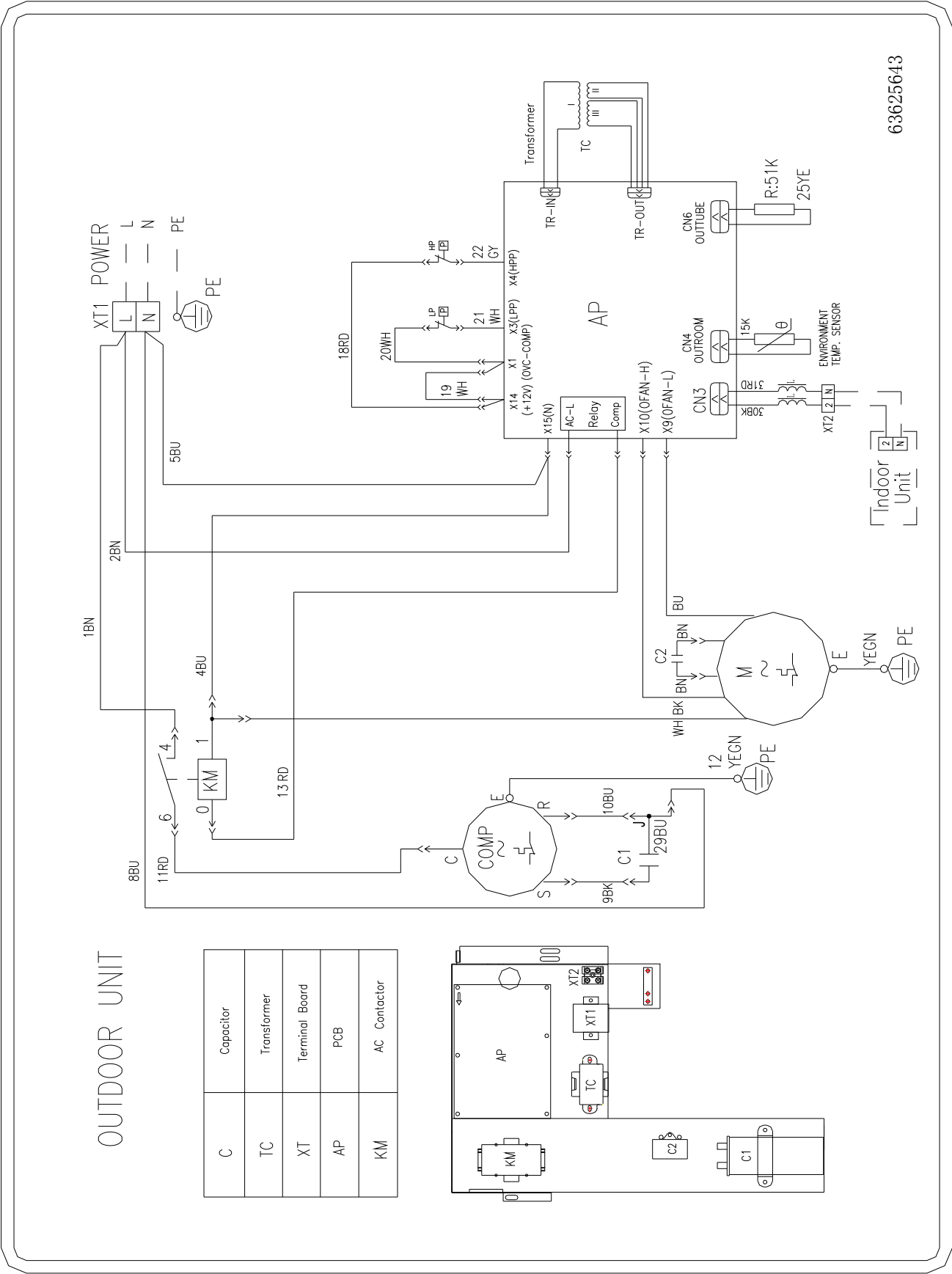
3 WIRING DIADRAM

3.1 Wiring Diagram-Outdoor Units

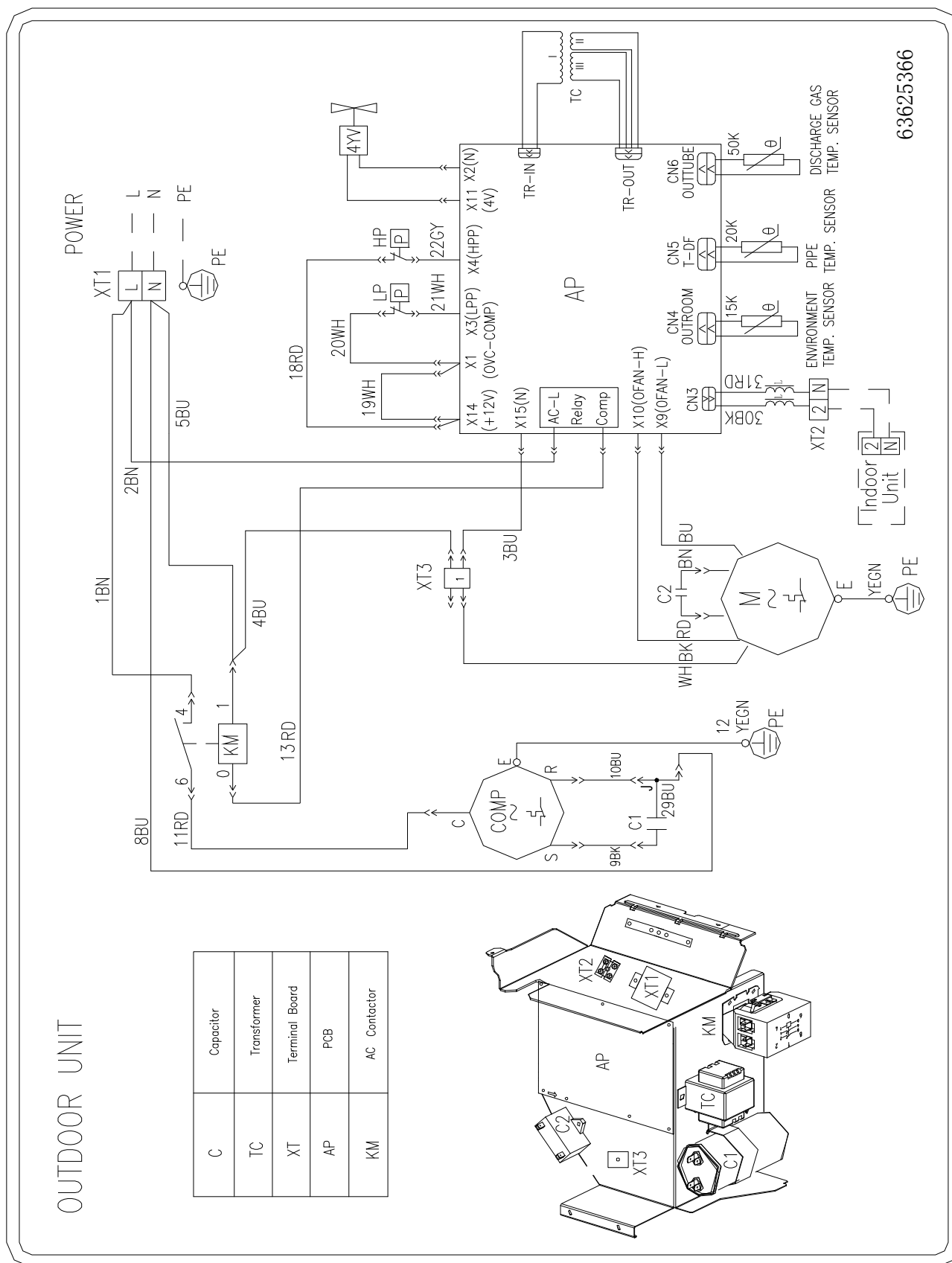
3.1.1. RY24PEV1K



3.1.2. R24PEV1K:



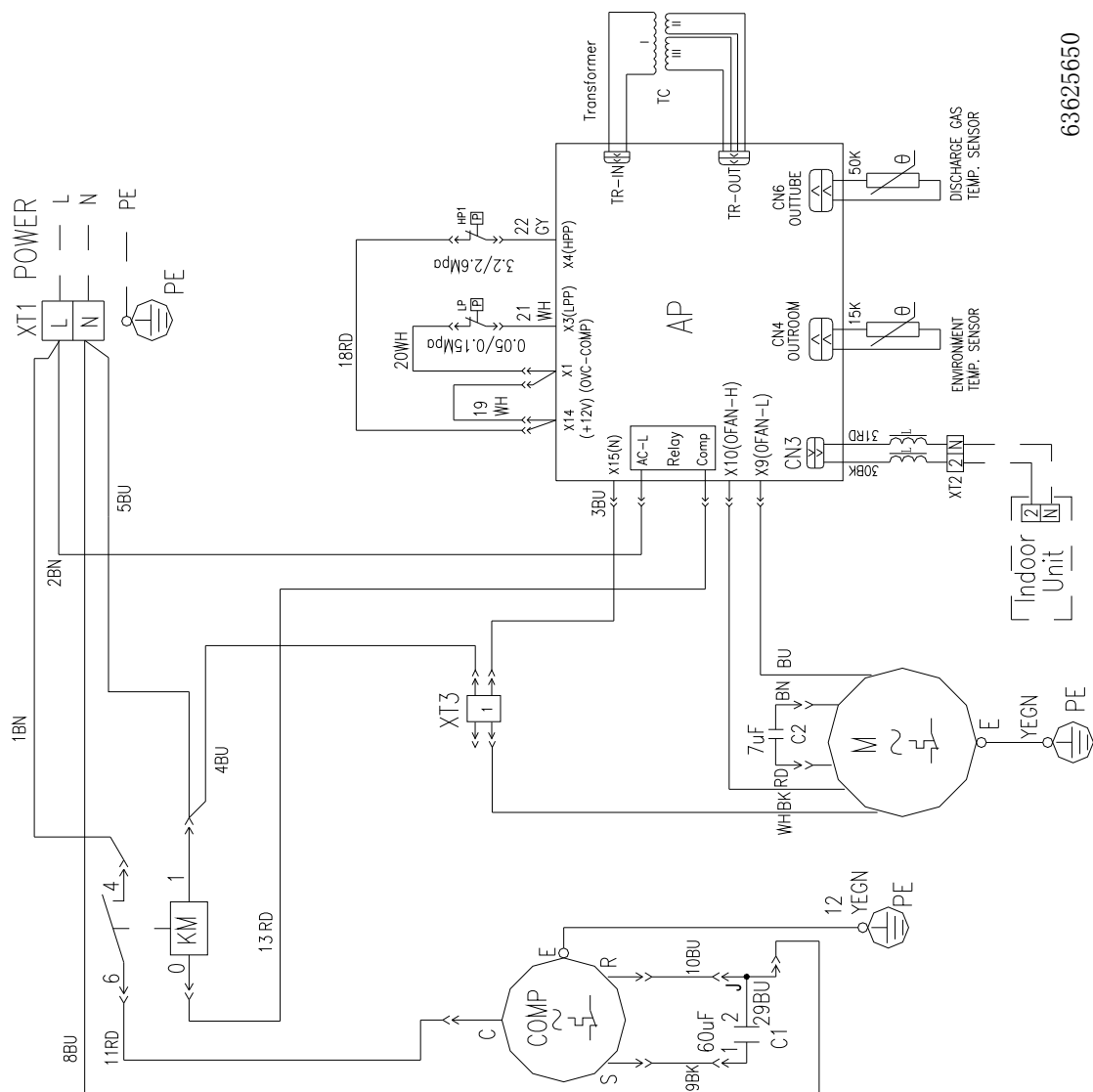
3.1.3. RY30PEV1K



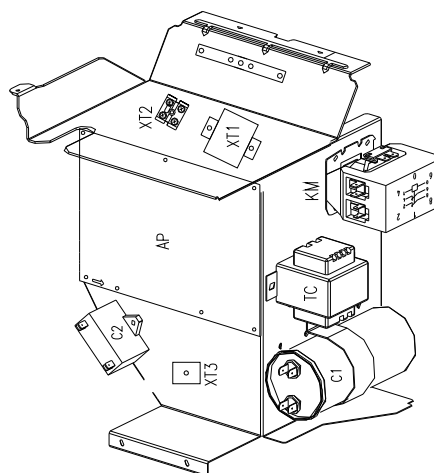
3.1.4. R30PEV1K

OUTDOOR UNIT

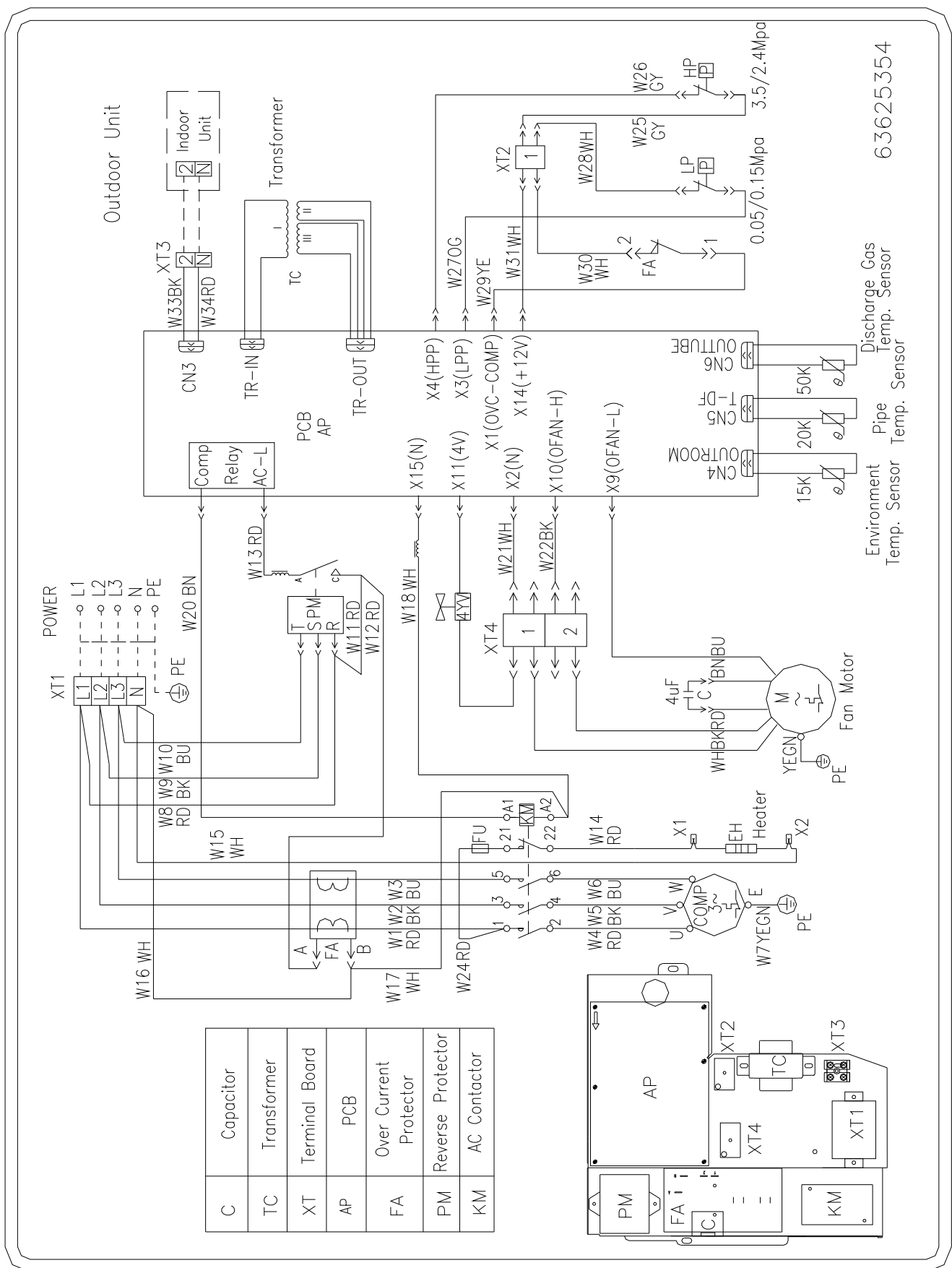
C	Capacitor
TC	Transformer
XT	Terminal Board
AP	PCB
KM	AC Contactor



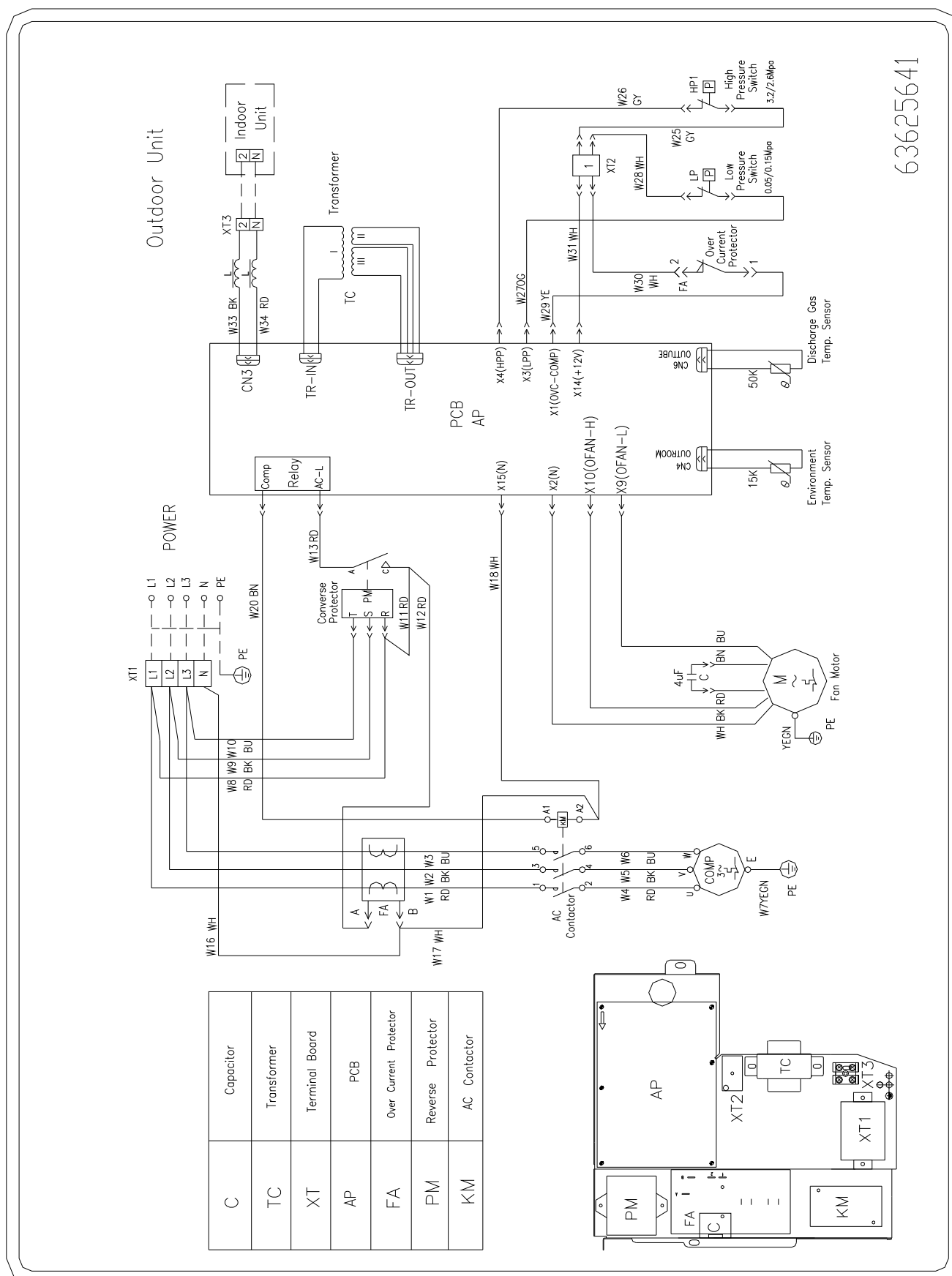
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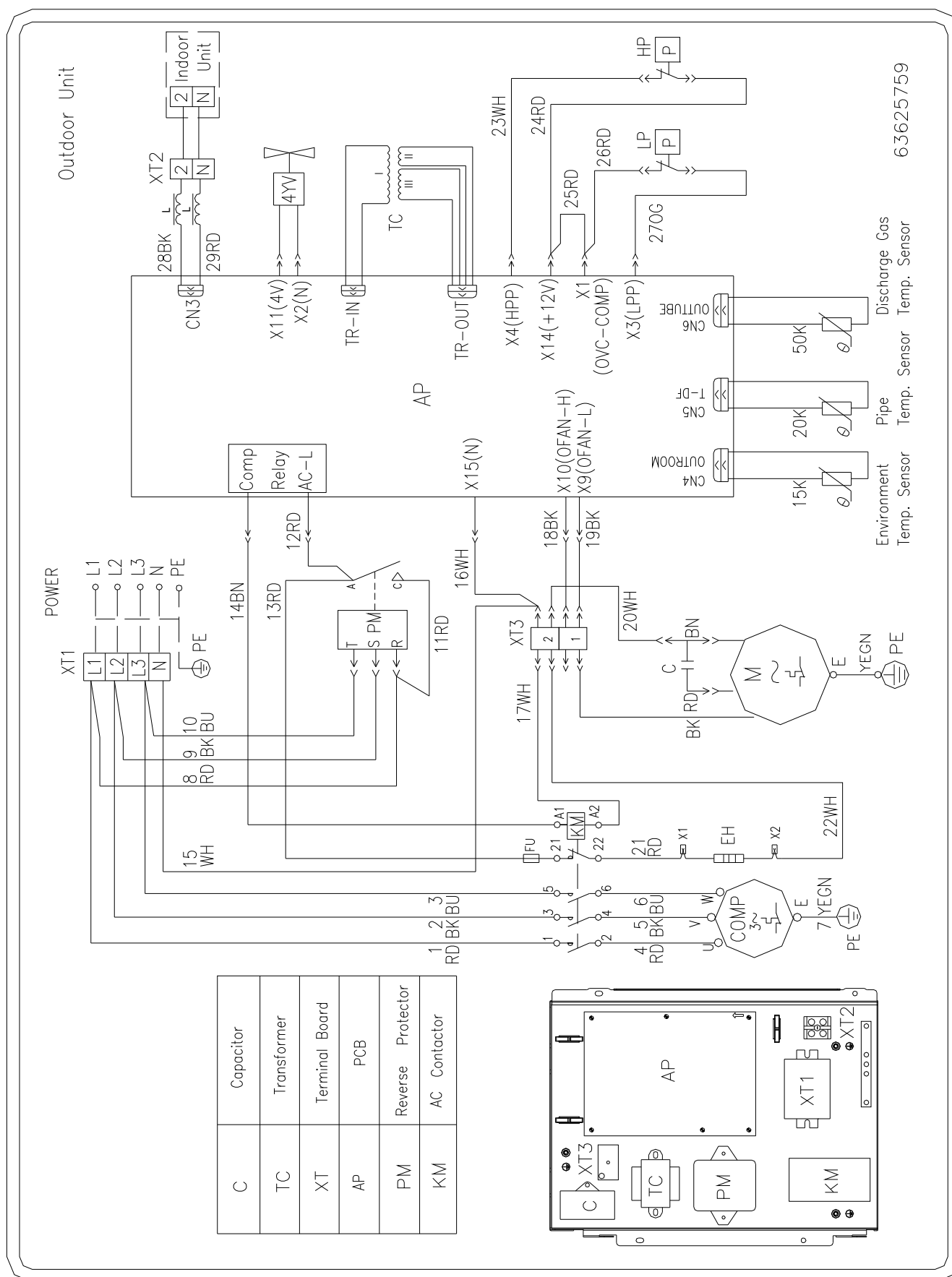
3.1.5. RY36PEY1K



3.1.6. R36PEY1K



3.1.7. RY42PEY1K/RY48PEY1K

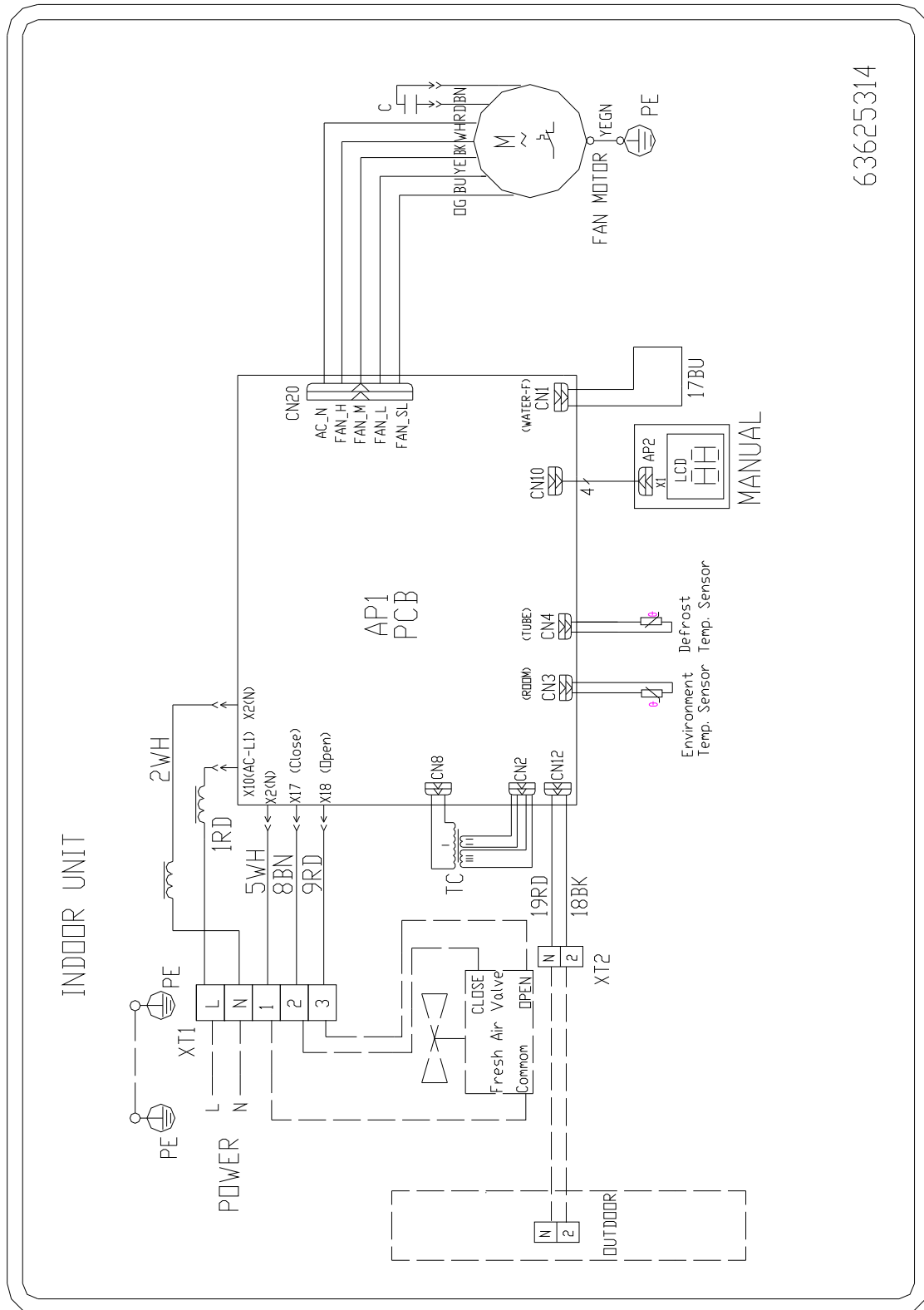




3.2 Wiring Diagram-Indoor units

3.2.1 Duct Type

Model: FD(Y)M24PEV1K; FD(Y)M30PEV1K; FD(Y)M36PEV1K;
FD(Y)M42PEV1K; FD(Y)M48PEV1K



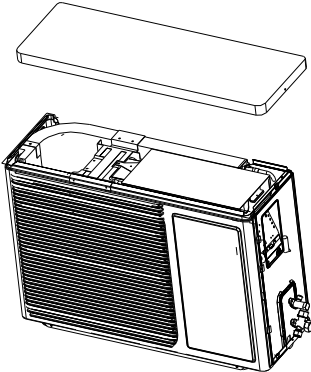
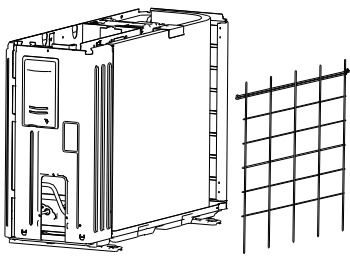
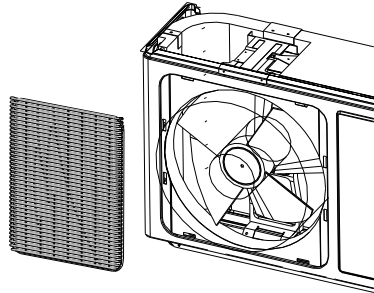
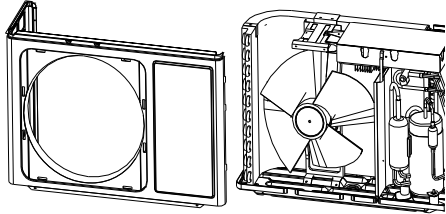
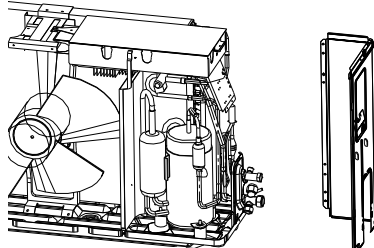
4. DISASSEMBLY AND ASSEMBLY PROCEDURE OF MAIN PARTS

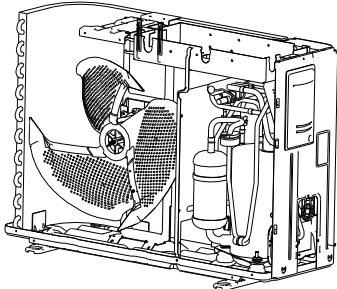
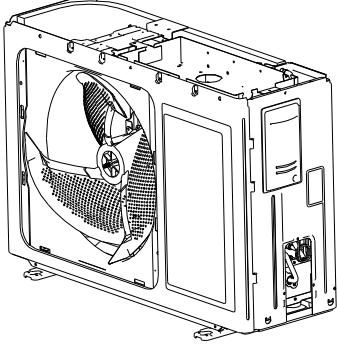
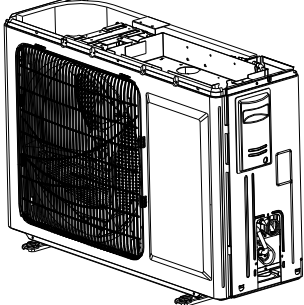
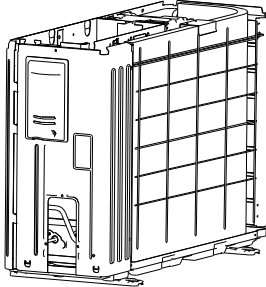
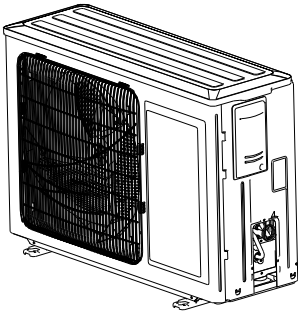
4.1 Outdoor Unit

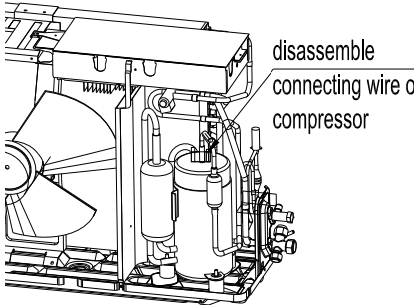
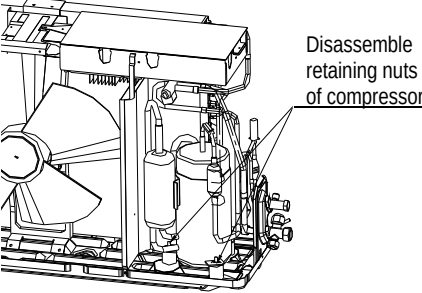
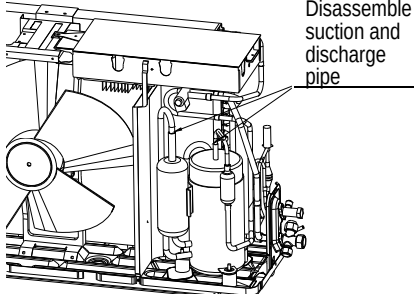
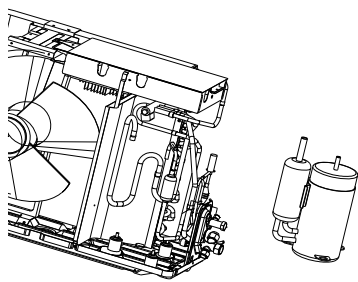
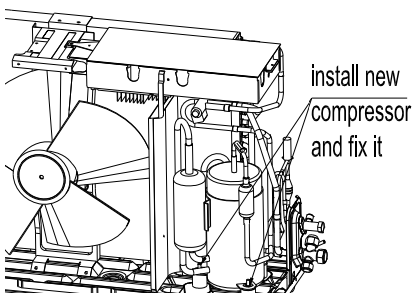
R(Y)24PEV1K; R(Y)30PEV1K; R(Y)36PEV1K; R(Y)42PEV1K; R(Y)48TPEV1K

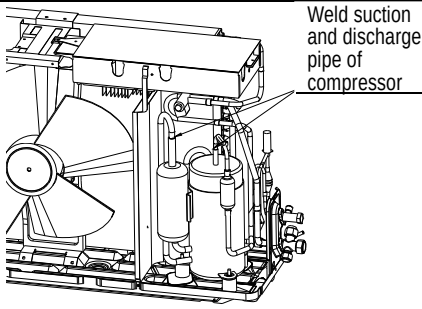
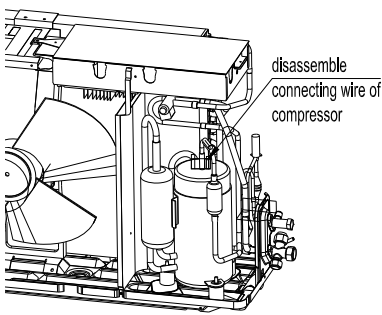
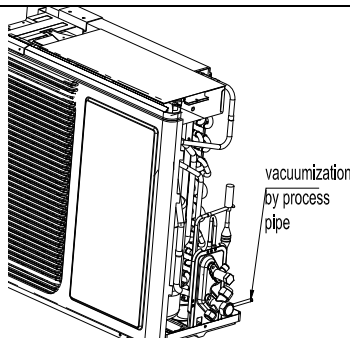
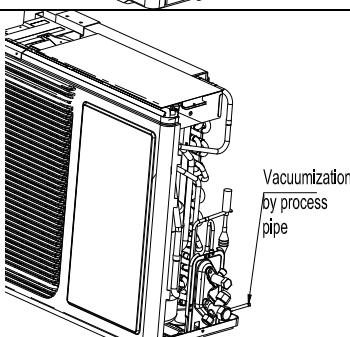
Disassembly and Assembly of external casing

Remark : Make sure that the power supply is cut off before disassemble of the external casing.

Step	Illustration	Handling Instruction
1. Disassembly of the top cover		• Unscrew retaining screws on top cover • Remove it from the unit.
2. Disassembly of rear grill		• Loose retaining screw on the rear grill with screwdriver. • Remove rear grill from the unit.
3. Disassembly of front grill		• Disassemble the screws of the front grill with screwdriver • Disassemble and remove the front grill from the panel (external casing).
4. Disassembly of panel (external casing)		• Disassemble the retaining screws on the panel (external casing); • Remove the panel (external casing) from the unit. • Some models (R(Y)30PEV1K; R(Y)36PEV1K; R(Y)42PEV1K; R(Y)48TPEV1K) require disassembling the front panel outside the external casing first before removing it.
5. Disassembly of right (back) panel		• Disassemble the screws on the right (back) panel with screwdriver. • Remove the right (back) panel from the unit.

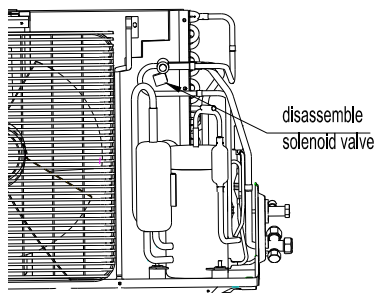
6. Installation of new right (back) panel		●Put new right (back) panel into right position. ●Screw down the surrounding retaining screws with screwdriver.
7. Installation of new panel (external casing)		●Put new panel (external casing) into right position on the unit; ●Screw down the surrounding retaining screws with screwdriver. ●Some models (R(Y)30PEV1K; R(Y)36PEV1K; R(Y)42PEV1K; R(Y)48TPEV1K) need to be equipped with front panel outside the external casing
8. Installation of front grill		●Put new front grill into correct position on the unit ●Screw down the surrounding retaining screws with screwdriver.
9. Installation of new rear grill		●Put new rear grill into the right position on the unit ●Screw down the surrounding retaining screws with screwdriver.
10. Installation of new top cover		●Put the new top cover into the correct position on the unit ●Screw down the surrounding retaining screws with screwdriver

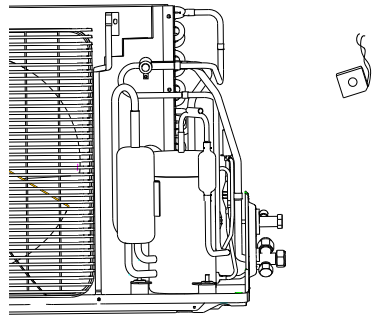
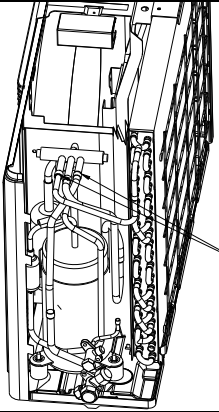
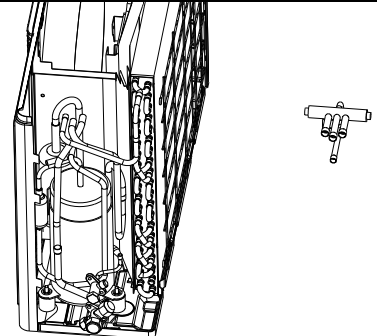
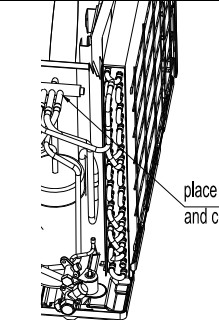
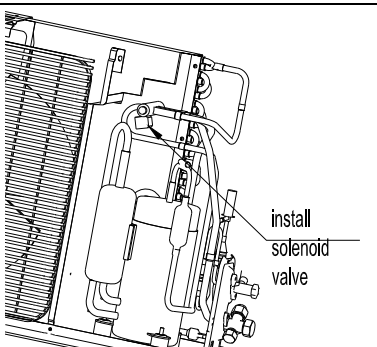
Disassembly and Assembly of Compressor		
Remark : Make sure there isn't any refrigerant in pipe system and the power supply is cut off before removal of the compressor.		
Step	Illustration	Handling Instruction
1. Disconnect the power cord		●Unscrew the retaining screw of power cord with screwdriver. ●Unplug the power cord. Note:Earmark the colour of wire corresponding to the terminal when Removing the wire, and the mixture can be avoided when recovering the wire connection.
2. Disassembly of retaining nuts on compressor		●Disassemble the retaining nuts on the compressor with wrench
3. Dismantle the discharge pipe and the suction pipe of compressor		●Heat the suction and discharge pipe with gas welding before removing compressor. ●Conduct nitrogen-fill protection when welding and the pressure of nitrogen is $0.05 \pm 0.01 \text{ Mpa}$ (relative pressure) ●Heating with caution in case the surroundings get burning due to high temperature.
4. Remove compressor		●Remove compressor from chassis.
5. Fix the new compressor on base plate		●Position accurately the new compressor. ●Screw down fixing nuts for compressor with wrench. ●Do not up-side-down compressor during assembly.

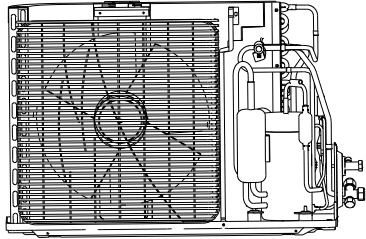
6. Connection of suction and discharge pipe with pipeline system		●Heat the suction and discharge pipe with gas welding before removing compressor. ●Provide nitrogen protection during gas welding and the nitrogen pressure should be 0.05 ± 0.01 Mpa (relative pressure) ●Please pay attention to heating in case that surrounding materials should be burnt by high temperature.
7. Connection power supply wires of compressor		●Assemble the power supply wires onto right position according to the order of disassembly. ●Screw down the retaining screw for the power supply wires with screwdriver.
8. Vacuumization by fluorin-feeding nozzle		●Vacuumize the system by fluorin-feeding nozzle
9. Recharge refrigerants by fluorin-feeding nozzle		●recharge refrigerants to the system by fluorin-feeding nozzle ●Volume of refilling should be in accordance with the requirement on the unit nameplate.

Disassembly and Assembly of 4-way valve

Remark : Make sure that there isn't any refrigerant in pipe system and the power supply is cut off before removal of 4-way valve.

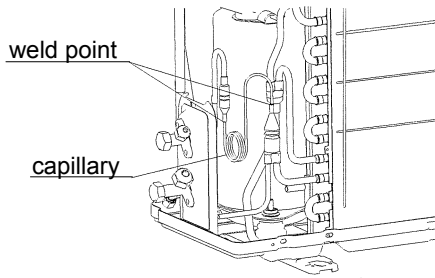
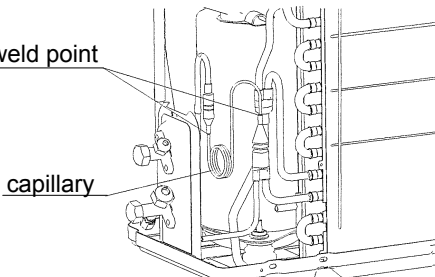
Step	Illustration	Handling Instruction
1. Disassembly of solenoid valve		●Cut off power supply and reclaim refrigerants properly. ●Disassemble solenoid valve with wrench

2. Removal of solenoid valve		●Remove the solenoid valve from 4-way valve.
3. Disassembly of 4-way valve	 Disassembly of connecting pipe of E,S,D,C pipes of 4-way valve	●Heat connection pipes for 4 pipes of 4-way valve with gas welding before removal of 4-way valve. ●Record the direction of the 4-way valve and installation position of each pipe before welding away 4-way valve.
4. Removal of 4-way valve		●Remove the old 4-way valve from the pipe line.
5. Installation of New 4-way valve	 place new 4-way valve and connect it	●Position accurately the new 4-way valve. ●Connect new 4-way valve with pipe line. ●Wrap the valve with wet cloth when welding 4-way valve in case sliding block inside the valve should be burnt and water flow into the pipe line. ●Welding with nitrogen and the nitrogen pressure shall be 0.05 ± 0.01 Mpa (relative pressure).
6. Assembly of solenoid valve	 install solenoid valve	●Assemble solenoid valve onto the new 4-way valve in order of disassembly.

7. Examination of System and cooling medium fillin		● Pump vacuum and fill cooling medium if the system leak test passes.
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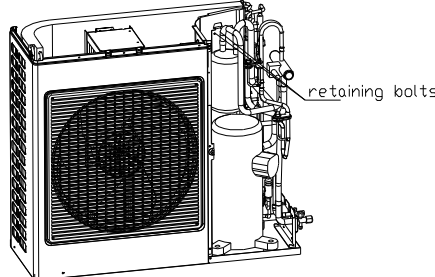
Disassembly and Assembly of capillary

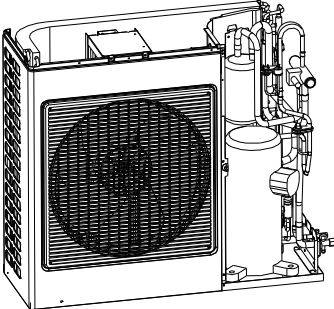
Remark : Make sure that there isn't any refrigerant in pipe system and the power supply is cut off before removal of the capillary

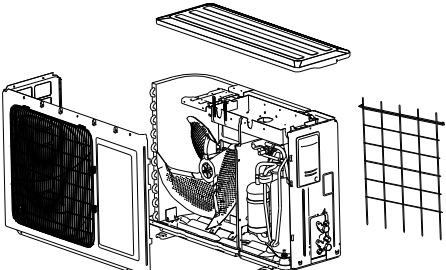
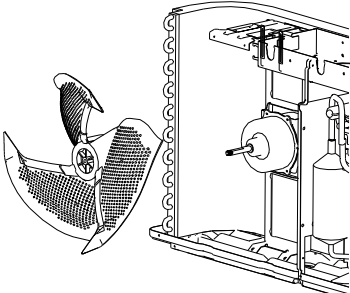
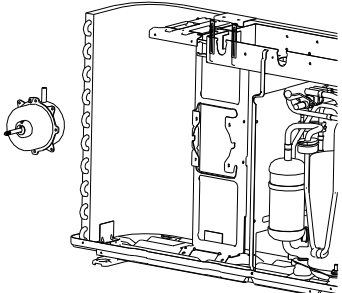
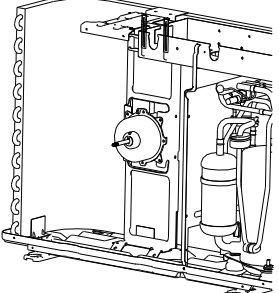
Step	Illustration	Handling Instruction
1. Disassembly of Capillary		● Weld two welding points connecting capillary with other pipe lines. ● Remove capillary.
2. Assembly of New capillary		● Install new capillary. ● Weld the points connected with other pipe lines. ● Re-conduct the system leak test. Pump vacuum and fill the refrigerants.

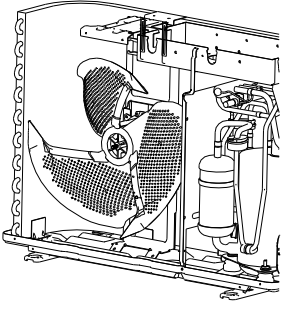
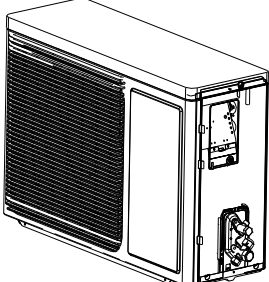
Disassembly and Assembly of Vapour Liquid Separator

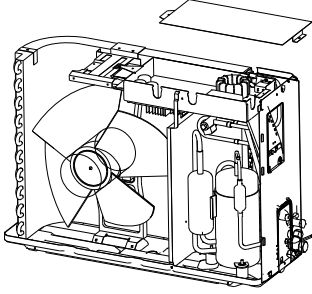
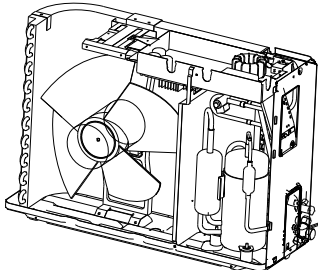
Remark : Make sure that there isn't any refrigerant in pipe system and the power supply is cut off before removal of the vapor liquid separator. (the models lowering than 24kBtu/h have no such steps.)

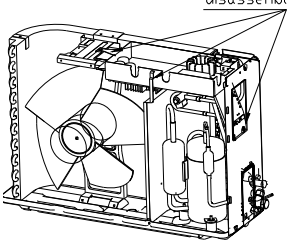
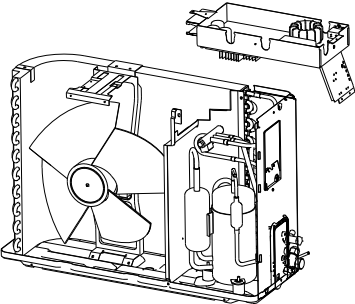
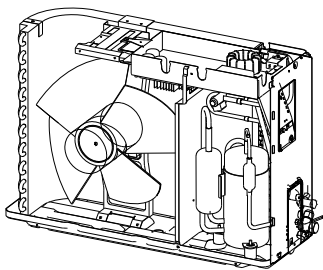
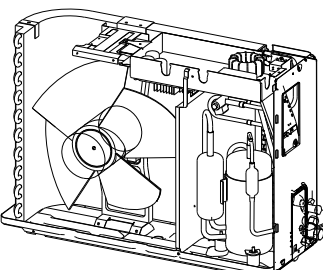
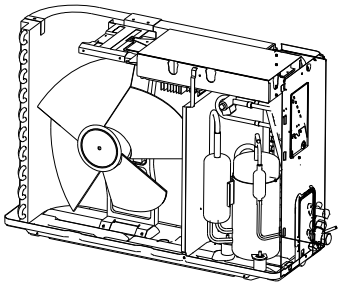
Step	Illustration	Handling Instruction
1. Disassembly of retaining bolts for liquid reservoir		● Disassemble the retaining screws on the pothooks of the reservoir with screwdriver.
2. Disassembly of vapor liquid separator	ffv	● Weld open two pipes connecting vapor liquid separator with pipe line with gas welding. ● Remove vapor liquid separator.

3. Installation of new vapor liquid separator		●Position accurately new vapor liquid separator. ●Connect new vapor liquid separator with pipe line using gas welding ●screw down the retaining bolts on pothook.
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Disassembly and Assembly of Axial Flow Fan and motor		
Remark : Make sure that power supply of the unit is cut down before removal of axial flow fan and motor.		
Step	Illustration	Handling Instruction
1. Disassembly of outdoor parts		●Disassemble outdoor parts of unit top cover, panel(external casing), screen,etc. according to the discription above in order to disassemble axial flow fan and motor conveniently.
2. Disassembly of axial flow fan		●Hold the fans without movement. ●Disassemle retaining nuts for the fans with wrench. ●Take down and remove fans from motor.
3. Disassembly of fan motor		●Open the cover plate of electric box ●Loose the connecting plug for motor wires and pull out the wires through the hole ●Disassemble retaining screws for motor support and remove the motor
4. Installation of new motor		●Position accurately the new motor on the motor support. ●Screw down the retaining screw for motor. ●Connect the motor wire through the hole with the corresponding position inside the electrical parts box and fasten the connecting plug. ●Cover the cover plate of electric box and screw it down by bolts.

5. Assembly of new axial flow fan		●Position reliably the new fan on the motor axis ●Hold the fans without movement. ●Screw down retaining screws for fan with wrench.
6. Assembly of outdoor parts		●Re-assemble the outdoor parts of unit top cover, panel (external casing) and rear grill, etc. according to the discription before.

Disassembly and Assembly of electrical parts box		
Remark : Make sure that power supply of the unit is cut down before removal of electrical parts box or electrical parts box modules.		
Step	Illustration	Handling Instruction
1. Disassembly of cover of electrical box.		●Cut off power supply ●Disassemble retaining screws between cover and electric box ●Remove the cover.
2. Pull away the power supply wires for components like motor, etc.		●Disassemble electrical components, like mainboard inside the electrical parts box connected with outdoor componets (power-loaded wires for componets like compressor, motor). Attention: Record right position for wire connection during disassembly of connecting wires.

3. Disassembly of sub-assy of electrical box.	 disassemble retaining screws	•Disassemble retaining screws between electrical parts box and middle clappord, motor support as well as right panel with screwdriver.
4. Removal of sub-assy of electrical box		•Hold and remove them upward to disconnect them with middle partition •Remove sub-assy of electric box.
5. Install new sub-assy of electric box		•Position accurately the new sub-assy of electrical box. •Re-fasten the sub-assy of electrical box and screw down with screwdriver
6. Connection of power supply wires of each component		•Re-connect the connection wires of components with right position according to the order of disassembly.
7. Install cover of electric box		•Position accurately the new cover of electrical box. •Re-fasten and screw down retaining screws with screwdriver

4.2 Indoor Unit

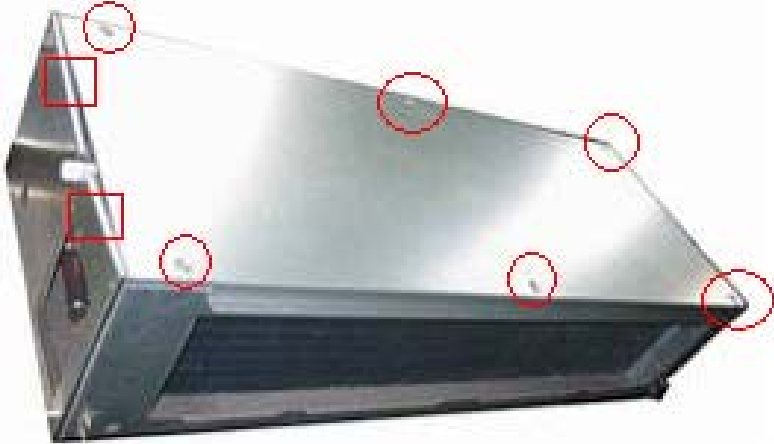
4.2.1 Duct Type

FDM24PEV1K; FDM30PEV1K; FDM36PEV1KI; FDM42PEV1K; FDM48PEV1K; FDM60PEV1K

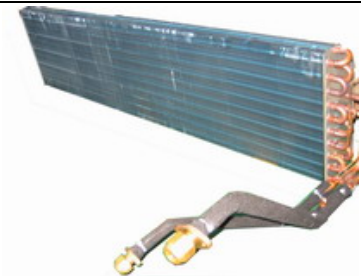
Disassembly of filter screen for return air		
Remark: Make sure that the power supply is cut off before disassembling and protect all the parts during disassembly. Do not put filter screen near the high temperature heat source		
Step	Illustration	Handling Instruction
Disassembly of filter screen for return air		●Compress the filter screen for return air down on the guide slot sponge, and remove according to the direction shown by the arrow. There are 2 filter screen for return air

Disassembly of electrical box cover panel and electrical box		
Remark: Make sure that the power supply is cut off before disassembling and protect all the parts during disassembly, especially the electrical components. Do not dampen or hit them		
Step	Illustration	Handling Instruction
1. Disassembly of electric box cover		Remove the screw according to the position shown in the circle and the box and remove the electrical box in the direction of the arrow.
2. Disassembly of electric box		Remove the screw and remove the electrical box. (As shown in the illustration, there are 2 fastening screws in the circle and the screws in the direction of arrow shall be disassembled too.)

Disassembly of drainage pump		
Remark: Make sure that the power supply is cut off before disassembling and protect all the parts during disassembly.		
Step	Illustration	Handling Instruction
1. Disassembly of the screws on seal-plates of indoor panels and the drainage pipe		Disassemble the screws on seal-plates of indoor panels and the pump drainage pipe. Remove the seal-plates. (As is shown in the illustration, the circle represents screws on seal-plates and box the screws on drainage pipe. All the 8 screws shall be disassembled.)
2. Disassembly of the screws on the drainage pump		Disassemble the screws on the drainage pump. (As is shown in the graph, the circle represents the position of screws.)
3. Removal of condensed water drainage pump		Removed condensed water drainage pump is shown in the illustration.

Disassembly of water-containing plate		
Remark: Make sure that the power supply is cut off before disassembling and protect all the parts during disassembly.		
Step	Illustration	Handling Instruction
1. Disassembly of cover plate		Remove the fastening screws on the cover plate and remove the cover plate. (As is shown in the illustration, circle represents 6 screws under the cover plate and the box represents two screws on water-containing plate symmetrically arranged both on left and right.)
2. Disassembly of water-containing plate		Remove the screws on the water-containing plate, pull upward and remove the water-containing plate. Disassembled water-containing plate is shown in the illustration.

Disassembly of fan and motor		
Remark: Make sure that the power supply is cut off before disassembling and protect all the parts during disassembly.		
Step	Illustration	Handling Instruction
1. Disassembly of fan		●Remove the fixing screws on the fan components. (As shown in the illustration, circle represents 6 screws.)
2. Disassembly of motor		●Remove the screws on the fan and motor. Remove the fan. (As shown in the illustration, box represents screws.)

Disassembly of evaporator		
Remark: Make sure that the power supply is cut off and protect the copper tube and aluminum fin. If the time for disassembly shall be long, put the copper tube under pressurized condition.		
Step	Illustration	Handling Instruction
1. Disassembly of fixing screws on the side panels of evaporator		Remove the screw connecting left and right side panels on the evaporator and the upper cover plate. (As shown in the arrow's direction in the illustration.)
2. Disassembly of the screws connecting evaporator valve seal-plate and joint flange		Remove the screws on the valve seal-plate and remove the valve seal-plate. Remove the screws on the evaporator's joint flange. (As shown in Illustration, box represents the screws on seal-plates while circle the screws on joint flange.)
3. Removal of evaporator		Remove the evaporator. Removed evaporator is shown in the illustration.

Disassembly of external casing cabinet		
Remark: Make sure the power supply is cut off before disassembling and protect all the parts during disassembly.		
Step	Illustration	Handling Instruction
1. Disassembly of the screws on the cover plates		Remove the screws between right and left panels and upper cover plates. Remove right and left panels. (As shown in the illustration, circle represents screws.)
2. Disassembly of the external casing cabinet		Disassembled the external casing cabinet is shown in the illustration.

Warning

- Daikin Industries, Ltd.'s products are manufactured for export to numerous countries throughout the world. Daikin Industries, Ltd. does not have control over which products are exported to and used in a particular country. Prior to purchase, please therefore confirm with your local authorised importer, distributor and/or retailer whether this product conforms to the applicable standards, and is suitable for use, in the region where the product will be used. This statement does not purport to exclude, restrict or modify the application of any local legislation.
- Ask a qualified installer or contractor to install this product. Do not try to install the product yourself. Improper installation can result in water or refrigerant leakage, electrical shock, fire or explosion.
- Use only those parts and accessories supplied or specified by Daikin. Ask a qualified installer or contractor to install those parts and accessories. Use of unauthorised parts and accessories or improper installation of parts and accessories can result in water or refrigerant leakage, electrical shock, fire or explosion.
- Read the User's Manual carefully before using this product. The User's Manual provides important safety instructions and warnings. Be sure to follow these instructions and warnings.

If you have any enquiries, please contact your local importer, distributor and/or retailer.

Cautions on product corrosion

1. Air conditioners should not be installed in areas where corrosive gases, such as acid gas or alkaline gas, are produced.
2. If the outdoor unit is to be installed close to the sea shore, direct exposure to the sea breeze should be avoided. If you need to install the outdoor unit close to the sea shore, contact your local distributor.



JMI-0107



JQA-1452

About ISO 9001

ISO 9001 is a plant certification system defined by the International Organization for Standardization (ISO) relating to quality assurance. ISO 9001 certification covers quality assurance aspects related to the "design, development, manufacture, installation, and supplementary service" of products manufactured at the plant.



EC99J2044

About ISO 14001

ISO 14001 is the standard defined by the International Organization for Standardization (ISO) relating to environmental management systems. Our group has been acknowledged by an internationally accredited compliance organisation as having an appropriate programme of environmental protection procedures and activities to meet the requirements of ISO 14001.

Dealer

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